KANSAS STATE COLLEGE
BULLETIN

Vol. XXIX May 15, 1945 No. 6

CATALOGUE

1945-1946

KANSAS STATE COLLEGE of Agriculture and Applied Science

Manhattan, Kansas

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THE COLLEGE CALENDAR

SUMMER SESSIONS, 1945

May 28-29	Monday-Tuesday	Registration
May 28	Monday	Entrance examinations
May 30	Wednesday	Classes begin
June 4-9	Monday-Saturday	4-H Club Roundup
June 23	Saturday	Examinations to remove conditions
June 23	Saturday	Deficiency reports
July 4	Wednesday	Holiday
July 24	Tuesday	End of first 8-week session
July 25	Wednesday	Beginning of second 8-week session
September 15	Saturday	End of second 8-week session

FIRST SEMESTER, 1945-1946

September 22	Saturday	Assigners meet
September 24-26	Monday-Wednesday	Freshman induction and registration
September 24	Monday	Entrance examinations
September 25-26	Tuesday-Wednesday	Registration, except freshmen
September 27	Thursday	Classes begin
October 20	Saturday	Examinations to remove conditions
October 20	Saturday	Deficiency reports
November 17	Saturday	Deficiency reports
November 22	Thursday	Thanksgiving Day, holiday
December 22, noon	Saturday	Christmas vacation begins
January 2, 1946	Wednesday	Classes resume
January 26, noon	Saturday	Semester ends

SECOND SEMESTER, 1945-1946

January 28-29	Monday-Tuesday	Registration
January 28	Monday	Entrance examinations
January 30	Wednesday	Classes begin
February 5-8	Tuesday-Friday	Farm and Home Week
February 23	Saturday	Examinations to remove conditions
February 23	Saturday	Deficiency reports
March 23	Saturday	Deficiency reports
April 22	Monday	Easter Monday, holiday
May 18	Saturday	Alumni Day
May 19, 8 p. m.	Sunday	Commencement

SUMMER SESSIONS, 1946

May 27-28	Monday-Tuesday	Registration
May 27	Monday	Entrance examinations
May 29	Wednesday	Classes begin
May 30	Thursday	Decoration Day, holiday
June 3-8	Monday-Saturday	4-H Club Roundup
June 22	Saturday	Examinations to remove conditions
June 22	Saturday	Deficiency reports
July 4	Thursday	Holiday
July 23	Tuesday	End of first 8-week session
July 24	Wednesday	Beginning of second 8-week session
September 14	Saturday	End of second 8-week session

FIRST SEMESTER, 1946-1947

September 21	Saturday	Assigners meet
September 23-25	Monday-Wednesday	Freshman induction and registration
September 23	Monday	Entrance examinations
September 24-25	Tuesday-Wednesday	Registration, except freshmen
September 26	Thursday	Classes begin

REGISTRATION AND ASSIGNMENT SCHEDULES

The following tabulation shows the schedule of hours for registration and assignment of students for the college year 1945-1946, arranged according to the initial letters of their last names:

SUMMER SESSIONS, 1945

SCHEDULE FOR ALL STUDENTS

MONDAY, MAY 28, 1945

Hours	*Initial letters*
7.45 to 8:30 a. m.	M
8:30 to 9:15 a. m.	I, K, Y, V
9:15 to 10:00 a. m.	Ba-Bra
10:00 to 10:45 a. m.	Bre-By, L
12:00 to 12:45 p. m.	A, F
12:45 to 1:30 p. m.	P, T
1:30 to 2:15 p. m.	C
2:15 to 3.00 p. m.	E, G, Q

TUESDAY, MAY 29, 1945

7:45 to 8:30 a. m.	Ha-Hol
8:30 to 9:15 a. m.	Hom-Hy, R, X, Z
9:15 to 10:00 a. m.	S
10:00 to 10:45 a. m.	D, O, U
12:00 to 12:45 p m.	Wa-Wi
12:45 to 1:30 p. m.	Wj, Wy, J, N
1:30 to 4:00 p. m.	Special students and any students who failed to report during the period provided for their group.

FIRST SEMESTER, 1945-1946

SCHEDULE FOR FRESHMAN STUDENTS*

MONDAY, SEPTEMBER 24, 1945

College Auditorium, 7:30 a. m.

General Meeting for all Freshmen

Hours	*Initial letters*
8:00 to 8:45 a. m.	J, N, W
8:45 to 9:30 a. m.	I, K, M, V, Y
9:30 to 10:15 a. m.	H, R, X, Z
10:15 to 11:00 a. m.	D, O, S, U
12:00 to 12:45 p. m.	C, E, G, Q
12:45 to 1:30 p. m.	A, F, P, T
1:30 to 3:00 p. m.	B, L, and any freshman students who failed to report during the period assigned for their group.

FIRST SEMESTER, 1945-1946

SCHEDULE FOR ALL OTHER STUDENTS

TUESDAY, SEPTEMBER 25, 1945

Hours	*Initial letters*
8:00 to 8:45 a. m.	Wa-Wi
8:45 to 9:30 a. m.	Wj-Wy, J, N
9:30 to 10:15 a. m.	M
10:15 to 11:00 a. m.	I, K, V, Y
12:00 to 12:45 p. m.	Ha-Hol
12:45 to 1:30 p m.	Hom-Hy, R, X, Z
1:30 to 2:15 p. m.	S
2:15 to 3:00 p. m.	D, O, U

* Freshmen entering Kansas State College for the first time may enroll at this time. Second semester freshmen, and freshmen presenting advanced credit from other institutions, enroll with upper classmen.

WEDNESDAY, SEPTEMBER 26, 1945

Hours	*Initial letters*
8:00 to 8:45 a. m.	C
8:45 to 9:30 a. m.	E, G, Q
9:30 to 10:15 a. m.	A, F
10:15 to 11:00 a. m.	P, T
12:00 to 12:45 p. m.	Ba-Bra
12:45 to 1:30 p. m.	Bre-By, L
1:30 to 3:00 p. m.	Special students and any students who failed to report during the period provided for their group.

SECOND SEMESTER

SCHEDULE FOR ALL STUDENTS

MONDAY, JANUARY 28, 1946

Hours	*Initial letters*
8:00 to 8:45 a. m.	Ba-Bra
8:45 to 9:30 a. m.	Bre-By, L
9:30 to 10:15 a. m.	C
10:15 to 11:00 a. m.	E, G, Q
12:00 to 12:45 p. m.	A, F
12:45 to 1:30 p. m.	P, T
1:30 to 2:15 p. m.	S
2:15 to 3:00 p. m.	D, O, U

TUESDAY, JANUARY 29, 1946

8:00 to 8:45 a. m.	Ha-Hol
8:45 to 9:30 a. m.	Hom-Hy, R, X, Z
9:30 to 10:15 a. m.	M
10:15 to 11:00 a. m.	I, K, V, Y
12:00 to 12:45 p. m.	Wa-Wi
12:45 to 1:30 p. m.	Wj-Wy, J, N
1:30 to 3:00 p. m.	Special students and any students who failed to report during the period provided for their group.

SUMMER SESSIONS, 1946

SCHEDULE FOR ALL STUDENTS

MONDAY, MAY 27, 1946

Hours	*Initial letters*
8:00 to 8:45 a. m.	Wa-Wi
8:45 to 9:30 a. m.	Wj-Wy, J, N
9:30 to 10:15 a. m.	S
10:15 to 11:00 a. m.	D, O, U
12:00 to 12:45 p. m.	N
12:45 to 1:30 p. m.	I, K, V, Y
1:30 to 2:15 p. m.	Ha-Hol
2:15 to 3:00 p. m.	Hom-Hy, R, X, Z

TUESDAY, MAY 28, 1946

8:00 to 8:45 a. m.	A, F
8:45 to 9:30 a. m.	P, T
9:30 to 10:15 a. m.	C
10:15 to 11:00 a. m.	E, G, Q
12:00 to 12:45 p. m.	Ba-Bra
12:45 to 1:30 p. m.	Bre-By, L
1:30 to 3:00 p. m.	Special students and any students who failed to report during the period provided for their group.

The Board of Regents

Oscar S. Stauffer, *Chairman*, Topeka
Lester McCoy, Garden City
Willis N. Kelly, Hutchinson
Fred M. Harris, Ottawa
Jerry E. Driscoll, Russell
Mrs. Elizabeth Haughey, Concordia
Drew McLaughlin, Paola
Grover Poole, Manhattan
Dr. LaVerne Spake, Kansas City

Hubert Brighton, Topeka.....*Secretary of the Board of Regents*
C. V. Kincaid, Topeka.....*Business Manager*

Administrative Officers* of the College

President	M. S. Eisenhower
President Emeritus	F. D. Farrell
College Historian	J. T. Willard
Dean of Administration and Director of the Summer School	R. I. Thackrey
Dean of the School of Agriculture and Director of the Agricultural Experiment Station	L. E. Call
Dean of the School of Engineering and Architecture and Director of the Engineering Experiment Station	R. A. Seaton
Dean of the School of Arts and Sciences	R. W. Babcock
Dean of the School of Home Economics and Director of the Bureau of Research in Home Economics	Margaret M. Justin
Dean of the School of Veterinary Medicine	R. R. Dykstra
Dean of the Division of College Extension	H. J. Umberger
Dean of the Graduate School	J. E. Ackert
Dean of Women	Helen Moore
Director of Admissions	S. A. Nock
Registrar	Mary Kimball
Librarian	William G. Baehr
Superintendent of Maintenance	G. R. Pauling

* Also included in the general alphabetical list.

The College

As a land-grant college, Kansas State has as one of its primary objectives technical instruction in agriculture, engineering and architecture, home economics, veterinary medicine, and the physical and biological sciences. There is also instruction in music, art, physical education, social and humane studies, business administration, and the type of journalism needed in such fields as agriculture, home economics, and engineering. The college prepares high school teachers in these various fields, and also laboratory technicians and specialists in institutional management.

In addition to this, however, the College gives a broader general education, designed to fit its students for their social and political responsibilities and for exercise of judgment in their individual lives. In policies and in practice, the College tries to stimulate an understanding of democracy and an enthusiasm for it.

Instruction is combined with research. In the agricultural and engineering experiment stations, in the Bureau of Research in Home Economics, and in the laboratories of the various scientific departments, there is constant investigation of problems of importance to the people of Kansas. Such research is largely conducted by the staff, but there is opportunity for capable students to participate.

Through the Division of College Extension, adult education is carried throughout the State. Although the work is largely in agriculture and home economics, there is opportunity for all the people in the State to profit in many ways. The Department of Home Study offers numerous correspondence courses and classes in extension centers which cover various fields. This phase of college usefulness will presumably grow as needed.

Coöperation With Veterans

All men and women honorably discharged from the Armed Forces of the United States are eligible for admission to Kansas State College. Many of these veterans will enter the College through the Veterans Administration under one of the federal laws providing for their education or vocational rehabilitation. The College coöperates in every way with the Veterans Administration in trying to meet the needs of these students. It will of course also coöperate with veterans who do not enter through the Veterans Administration.

Since many men who have served in the Armed Forces were called into service before their education was complete, the College will consider the individual needs of each student who has had his education thus interrupted. Those who enter without high-school diplomas or a full list of high-school prerequisites, will be given an opportunity to make up whatever they lack, in the most convenient way possible. Often general educational development tests will show that a student has attained the intellectual status of a college student. Sometimes special tests will be necessary; and for certain technical curriculums, high school prerequisites, especially in mathematics, will have to be made up. The customary regulations of the College in regard to such matters will be modified to suit the needs of the veteran.

Likewise, those whose college education has been interrupted, will be given an opportunity in refresher or tutorial courses to prepare themselves for continuation of their work.

Academic work done by men in service will be accepted as far as possible. See page 13. Correspondence courses taken from accredited colleges and universities through the United States Armed Forces Institute will be accepted insofar as they apply on a student's curriculum. Other courses given by the United States Armed Forces Institute may be accepted if validated by ex-

aminations. Service courses must usually be validated by examination. A veteran who has taken a course of instruction of any kind while in the Armed Forces, is urged to have the United States Armed Forces Institute prepare a complete report of his record while in service and send it to the Director of Admissions, Kansas State College.

Correspondence concerning records made in the Armed Forces should be addressed to the United States Armed Forces Institute, Madison 3, Wisconsin.

The College is also prepared to take into consideration the unusual requirements and needs of veterans and will give personnel problems the fullest consideration. Correspondence about Kansas State College should be addressed to the Director of Admissions, who will consider individual cases at any time.

The College is coöperating fully with the United States Armed Forces Institute, the American Council on Education, and other institutions, in arranging the programs of veterans.

State Vocational Rehabilitation Training

The College coöperates with the State Board for Vocational Education in providing rehabilitation training for physically handicapped persons who need financial assistance to secure such training. Applications should be directed to the Vocational Rehabilitation Division of the State Board for Vocational Education at Topeka, Kansas.

Admission

All correspondence about admission should be addressed to the Director of Admissions.

High-school Graduates

A graduate of any Kansas high school or academy accredited by the State Board of Education may enter the freshman class. A graduate of an accredited high school or academy in another state may enter if his principal recommends him as capable of college work.

The Director of Admissions will send every applicant an information blank, which should be filled in and returned as soon as possible. On it the student must specify the curriculum in which he plans to enroll.

When the Committee on Admissions gets the student's information blank properly filled in, it will ask the applicant's high school principal to send a transcript of record. If this transcript is satisfactory, the committee will send the student, shortly before registration time, a permit to register. Students who present such permits will not have to meet with the committee before registration.

Students without permits to register must meet with the Committee on Admissions before registering. Those without satisfactory transcripts of record may be enrolled provisionally at the option of the committee.

The committee cannot act on transcripts received later than two weeks before the date of registration.

Entrance examinations will be given to students who are deficient in high school units. See the dates on the College Calendar (page 5). Applications for such examinations must be made in advance to the Registrar.

As enrollment in the curriculums in Milling and Veterinary Medicine is limited, students who wish to be admitted to those curriculums should read the statements entitled "Milling Enrollment Limited" and "Veterinary Enrollment Limited," under the schools of Agriculture and Veterinary Medicine.

There are certain fixed requirements for all curriculums. Although a high school graduate may enroll in the College if he lacks some of these, he must make up entrance deficiencies. Fixed requirements for all curriculums are 3 units* of English, 1 unit of algebra, 1 unit of plane geometry, and 1 unit of biological or physical science.

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* A unit represents five recitation periods a week for a full school year.

For the following curriculums the fixed requirements are 3 units of English, 1 unit of algebra, 1 unit of plane geometry, and 1 unit of biological or physical science:

Agriculture
Agriculture (2 years)
Agricultural Administration
Agricultural Education
Arts and Sciences
Biological Science
Business Administration
Dairy Manufacturing
Dietetics and Institutional Management
Floriculture and Ornamental Horticulture
Home Economics
Home Economics and Nursing (5 years)
Industrial Journalism
Music, Applied
Music Education
Physical Education for Men
Physical Education for Women
Preveterinary year
Soil Conservation

For the following curriculums an additional ½ unit of algebra is required:

Milling Administration
Milling Chemistry

For the following curriculums an additional ½ unit of algebra and ½ unit of solid geometry are required:

Agricultural Engineering
Architecture
Architectural Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering
Industrial Arts
Industrial Chemistry
Industrial Physics
Industrial Technology (2 years)
Landscape Design
Mechanical Engineering
Milling Technology
Physical Science

A student who enters without one unit of algebra and one unit of plane geometry will be enrolled as a special student if he wishes to enter any engineering curriculum, or the curriculums in Industrial Chemistry, Industrial Physics, Landscape Design, Milling, or Physical Science. As soon as the fixed requirements in mathematics are completed, he will be transferred to regular status without loss of credit.

A student who lacks one unit of algebra must complete this requirement by correspondence study during his first semester in college.

A student who lacks one unit of plane geometry should complete this requirement in the geometry class or by correspondence during his first semester of attendance; he must complete it by the end of his third semester.

For information about making up deficiencies in algebra and geometry, the student should consult the Department of Home Study. See page 238. No student lacking required units in algebra and plane geometry will be advanced in classification.

A student lacking a half unit of advanced high school algebra will, if he enrolls in a curriculum for which it is required, be assigned to a five-hour course in college algebra instead of the regular three-hour course. For the extra hours he may be given elective credit toward graduation, except in engineering curriculums.

A student lacking solid geometry will, if he enrolls in a curriculum for which it is required, be assigned to a two-hour course in solid geometry. For the extra hours he may be given elective credit toward graduation, except in engineering curriculums.

A student lacking one-half or one required unit of biological or physical science will be held for two or four hours of college science in addition to the science required in his curriculum. For these hours he may be given elective credit toward graduation, except in engineering curriculums.

A matriculated student, who has high school units in excess of the fifteen units required for admission, may apply for an examination in certain subjects of freshman rank on the basis of his surplus units. The application should be made to the Registrar, who will give the Committee on Admission a statement of surplus units. The committee may then give an examination within the first thirty days of the semester or summer session. Examinations which affect the assignment of a semester or summer session, however, will be given on the first Saturday of that semester or summer session. After the expiration of the thirty-day period, the student's dean may authorize an examination.

High-school Nongraduates

A student who is not a graduate of an accredited high school or academy may enter the freshman class if he has completed fifteen acceptable units of high school work, including the fixed requirements. One who offers fourteen such units will be admitted, but will be conditioned in one unit. The deficiency must be made up during the first year of attendance. In addition to three units of English and one unit each of algebra, plane geometry, and biological or physical science, he must offer nine units in the subjects listed below. There are eight groups of acceptable subjects, shown in the following table with the number of units of each that will be accepted.

Group	*Subject*	*Number of Units Acceptable*
I. English	English	3 or 4
	Journalism	½ or 1
	Speech	½ or 1
II. Mathematics	General or Applied Mathematics	½ or 1
	Elementary Algebra	1
	Advanced Algebra	½ or 1
	Plane Geometry	1
	Solid Geometry	½
	Plane Trigonometry	½
III. Languages	Foreign Languages	1 to 4
IV. Science	General Science	½ or 1
	Biology	½ or 1
	Botany	½ or 1
	Physical Geography	½ or 1
	Physiology	½ or 1
	Chemistry	1
	Physics	1
	Zoölogy	½ or 1
V. History and Social Studies	Modern or European History	1
	World History	1
	American History	1
	Geography	½
	Civics	½ or 1
	Government	½ or 1
	Constitution	½
	International Relations	½
	Vocations	½ or 1
	Sociology	½
	Economics	½ or 1
VI. Commercial Subjects	Typewriting	½ or 1
	Shorthand	½ or 1
	Bookkeeping	½ or 1
	Commercial Law	½
	Salesmanship	½

VII. Industrial Subjects	Agriculture	½ to 4
	Home Economics	½ to 4
	Drawing	½ or 1
	Aeronautics	½ or 1
	Forging	½ or 1
	Woodwork	½, 1, or 2
	Printing	½, 1, or 2
VIII. Normal Training Subjects	Methods and Management	½
	Psychology	½
	Reviews	1
	Grammar, Geography, & Reading, 12 weeks each, *or*	
	Two of these, 18 weeks each:	
	Music	1
	Art	1

In courses consisting of laboratory work, wholly or in part, two periods of laboratory work are considered the equivalent of one recitation period.

Students from high schools not in Kansas must be recommended by their principals as capable of doing college work.

Students with Advanced Credit

Students presenting transcripts of record of work done in other accredited institutions of collegiate level are allowed hour-for-hour credit on courses in this College insofar as the credits can be directly applied on the student's curriculum, or can be accepted as substitutes or electives. A student who cannot furnish an acceptable transcript of record of work for which he asks advanced credit, may be examined in subjects that he has studied under competent instructors.

On the information blank furnished by the Committee on Admissions a student with advanced credit must not only state the curriculum he plans to follow, but also list all other institutions in which he has been enrolled. He must ask these institutions to send a transcript of his record to the Director of Admissions. If fees are charged for such transcripts, the applicant must make necessary arrangements with his former institutions.

When the transcripts have been evaluated, the committee will send the student a letter explaining what advanced credit he will be given and what his classification will be, and shortly before registration will send a permit to register. Students without a permit to register must meet with the committee before registering. If their records are not completely satisfactory, they may be enrolled provisionally at the option of the committee.

The committee cannot act on transcripts received later than three weeks before the date of registration.

NOTE: Transcripts of record must come to the Director of Admissions directly from the institutions isuing them. Others will not be accepted.

In general, no student will be admitted to the college unless he is eligible to return to the institution last attended.

Veterans of the Armed Forces

Correspondence courses taken from accrediated institutions through the United States Armed Forces Institute will be accepted from men and women returning from service in the Armed Forces, subject to the regular rules covering the acceptance of advanced credit by correspondence.

Correspondence courses and others given by the United States Amed Forces Institute, in-service courses, and other courses taken by men and women while in service in the Armed Forces, may be accepted for entrance credit or advanced credit if they are validated by examinations given by the College, or in some other manner satisfactory to the student's dean.

Work done by men in the Army Specialized Training Program, the Navy V-12 Program, or the Army Air Forces Pre-Meteorology or Meteorology courses will in general be accepted as of collegiate grade, and used for advanced

credit insofar as it applies on the curriculum chosen by the student. Army Air Forces College Training Program (Aircrew) courses and Navy V-5 courses must usually be validated by examination.

Men and women who have completed basic training in any branch of the Armed Forces will get military elective credit for all required Military Science courses on the basis of such experience, and may get up to eight hours of such credit for further service if the elective credit can be used in the curriculum chosen.

Graduates of Officer Candidate Schools and Officer Training Schools may get up to twelve hours of military elective credit for military experience if the elective credit can be used in the curriculum chosen.

The College will make every effort to coöperate with students returning from service in the Armed Forces, who may not be in a position to comply exactly with College regulations for admission and advanced credit. The College intends to give to such students all credit that can properly be allowed without handicapping them in subsequent study because of lack of prerequisites. Evaluations will customarily be made on a student's enrollment or reenrollment, or on presentation of evidence that a student may complete requirements for a degree by offering for credit work done while in Service.

Special Students

A special student is one not regularly enrolled to work for a degree. He may, however, on completing entrance requirements and with the consent of his dean, become a regular student.

A student who satisfies entrance requirements may be admitted as a special student for such work as is approved by the dean of the school in which he enrolls.

A student who satisfies requirements for entrance to the College, but lacks fixed requirements for admissions to certain curriculums (see page 11) may, with the approval of the dean, be admitted as a special student to the School in which he wishes to enroll. When the fixed requirements have been completed, he may, with the consent of the dean, become a regular student without loss of credit.

Because experience and maturity often compensate for lack of scholastic attainment, the College admits as special students men and women over twenty-one years of age who cannot meet the regular entrance requirements. The age limit does not apply to special students in music.

Special students must present transcripts of record of their preliminary education and must give evidence of satisfactory preparation for courses they wish to take. They are subject to regulations for regular students, payment of all fees, regular attendance at classes, maintenance of satisfactory standing, and as a rule assignment to physical education and military training.

The College will give special consideration to students who apply for admission as special students on the basis of experience gained in service in the Armed Forces.

Late Admission

A student is not admitted to the College later than ten days after the opening of a semester, except by special permission of his dean. Except in summer school, a fee of $2.50 is charged anyone assigned after the time set for the close of registration. (See the College Calendar.)

Physical Examination

Every undergraduate student must have a complete physical examination, given by the Department of Student Health at a specified time. No new registration is complete without this physical examination. Students who do not meet the requirements will be dropped from the College rolls.

Junior Colleges

There is excellent coöperation between the junior colleges of Kansas and Kansas State College. A student who plans to begin his work in a junior college and complete it in Kansas State College may arrange his program so as to proceed without loss of time. Different curriculums require different subjects, but the College will give all possible credit for work done in junior colleges. Hour-for-hour credit is given where junior college work can be applied directly or accepted as substitute or elective courses.

The College will gladly furnish to junior college students a list of recommendations for any curriculum, so that a student may begin his work in junior college with an assignment acceptable to this institution, and later transfer without loss of credit. A junior college student who has followed the advice of the College can usually complete his work for the bachelor's degree from Kansas State in two years.

The curriculums printed in this catalogue give full information as to courses required in each, but the College will be glad to hear from students as to specific problems.

The following Kansas junior colleges are accredited by the State Board of Education:

PUBLIC

Municipal Junior College, Arkansas City
Chanute Junior College, Chanute
Coffeyville Junior College, Coffeyville
Dodge City Junior College, Dodge City
El Dorado Junior College, El Dorado
Fort Scott Junior College, Fort Scott
Garden City Junior College, Garden City
Highland Junior College, Highland
Hutchinson Junior College, Hutchinson
Independence Junior College, Independence
Iola Junior College, Iola
Kansas City Junior College, Kansas City
Parsons Junior College, Parsons
Pratt Junior College, Pratt

PRIVATE

Central Academy and College, McPherson
College of Paola, Paola
Hesston College, Hesston
Sacred Heart, Wichita
Saint John's College, Winfield
Tabor Academy and College, Hillsboro

General Information

The College, founded on February 16, 1863, was established under the Morrill Act, under which land grant colleges came into being. According to the law of its establishment, the object of the College is—

"Without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

At first the College was located on the grounds of the old Bluemont Central College, chartered in 1858, but in 1875 most of the work of the College was moved to the present site. The campus is at the northwest corner of the city of Manhattan, convenient to both business and residential sections. The campus itself consists of 155 acres carefully landscaped, while beyond the campus there are about 1500 acres of land belonging to the College, used for experimental work in agriculture.

The College buildings are all constructed of native limestone and so placed as to give maximum effect to the landscaping of the campus.

Business Directions

General information about the college is obtainable from the President.

Prospective students should communicate with the Director of Admissions.

The experiment stations and the various departments are always ready to respond to requests for information in their special fields. Those who need scientific and practical information should write to the head of the department concerned with the work under consideration.

Applications for farmers' institutes should be made as early in the season as possible to the Division of College Extension. Requests for publications of the Agricultural Experiment Station or the Engineering Experiment Station should be made to the Director of the station.

Fees

Fees Subject to Change. All fees are subject to change at any time by the Board of Regents.

Payment of Fees. The matriculation fee is paid at first enrollment in the College. The incidental fee, the student-health fee, the student-activity fee, the student union fee, and laboratory fees are paid on registration at the beginning of each semester or summer session.

All fees must be paid in full at the time of registration. Checks on out-of-town or local banks are accepted to the amount of the fees.

Tuition. There is no tuition fee. Fees are charged for individual lessons in music but not for class instruction. (See the list of fees under the Department of Music.)

Matriculation Fee. The matriculation fee, paid only once, covers the costs of registration and assignment and keeping a student's record throughout his college course. It is $10 for residents of Kansas and $20 for nonresidents. All students except those enrolling in special short courses must pay this fee on first enrollment.

Incidental Fee. The incidental fee covers part of the cost of instruction. This fee, for residents of Kansas, is $25 a semester or sixteen-week summer session, or $20 for either eight-weeks summer session. Nonresidents pay $75 and $50 respectively.

Student-Health Fee. This fee is $7.50 a semester or sixteen-week summer session, or $3.75 for either eight-week summer session. Undergraduate students must pay it, and graduate students carrying ten hours a semester or sixteen-

week summer session, or six hours in an eight-week summer session, may pay it at their discretion. For a description of the Department of Student Health, see page 24.

Student-Activity Fee. In accordance with a vote by the student body, each undergraduate student pays a student-activity fee of $7.50 a semester, plus tax, collected by the college with the fees levied by the state. Payment of the student-activity fee gives admission to athletic contests and to plays presented by the Kansas State Players, membership in the Student Governing Association, and subscriptions to the student newspaper and the college yearbook. Members of the faculty, employees of the college, and graduate students have the privilege of paying the fee and enjoying its benefits. In the summer every student, graduate or undergraduate, pays a student-activity fee of $1, plus tax, for either eight-week session, or $2 plus tax for the sixteen-week session.

Student Union Fee. In accordance with a vote by the student body and with section 4 of chapter 364 of the Kansas Session Laws of 1941, each student pays a student union fee of $5 a semester or sixteen-week summer session, or $2 for either eight-week summer session. The fund so collected is to be used to provide a student union building.

Recapitulation. To make clear the amount of fees due at the opening of each semester of the College year, exclusive of laboratory charges and deposits, the following tabular statement is given:

FOR RESIDENTS OF KANSAS

	New Students	*Old Students*
Matriculation (paid only once)	$10.00	None
Incidental (one semester)	25.00	$25.00
Student health (one semester)	7.50	7.50
Student-activity (one semester)	7.50	7.50
Student Union (one semester)	5.00	5.00
Totals	$55.00	$45.00

FOR NONRESIDENTS OF KANSAS

	New Students	*Old Students*
Matriculation (paid only once)	$20.00	None
Incidental (one semester)	75.00	$75.00
Student health (one semester)	7.50	7.50
Student-activity (one semester)	7.50	7.50
Student Union (one semester)	5.00	5.00
Totals	$115.00	$95.00

Definition of Residence. The residence of students entering Kansas State College is determined by an act of the legislature (L. 1938, Special Session ch. 70, sec. 1), which reads as follows:

Persons entering the state educational institutions who if adults have not been, or, if minors, whose parents have not been residents of the state of Kansas for six months prior to matriculation in the state educational institutions, are nonresidents for the purpose of the payment of matriculation and incidental fees: *Provided further*, That no person shall be deemed to have gained a residence in this state for the aforesaid purpose while or during the elapse of time attending such institution as a student, nor while a student of any seminary of learning, unless, in the case of a minor, his parents shall have become actual residents in good faith of the state of Kansas during such period, or unless, in the case of a minor, he has neither lived with nor been supported by his parents or either of them for three years or more prior to enrollment and during said years has been a resident in good faith of the state of Kansas.

Pro Rata Fees. Students who enroll for six hours or less in a semester or sixteen-week summer session, may pay an hourly fee instead of the incidental fee. This fee is $2 an hour for residents of Kansas and $3.75 an hour for nonresidents. Payment of matriculation and other College fees is required as of other students. Students enrolling in one of the eight-week summer sessions are not eligible for the hourly fee.

Laboratory Charges and Deposits. Students pay for all laboratory supplies used and all apparatus broken or lost. Where such charges are made they appear in the course descriptions. Changes are effective June 1. The laboratory charges for each semester of the freshman year and the first of the four professional years in Veterinary Medicine are shown below by curriculums. These charges are approximate.

Curriculum	*First semester*	*Second semester*
Agricultural Administration	$12.75	$10.25
Agricultural Education	16.25	30 25
Agricultural Engineering	15.75	17.75
Agriculture	24.25	15.25
Agriculture (2 years)	16.75	14.75
Architectural Engineering	13.75	13.75
Architecture	5.25	6.25
Arts and Sciences	7.50	7.75
Biological Science	12.00	12.00
Business Administration	7.50	7.50
Chemical Engineering	15.25	16.25
Civil Engineering	12.75	14.75
Dairy Manufacturing	22.75	20.50
Dietetics and Institutional Management	18.25	17.50
Electrical Engineering	15.75	16.75
Floriculture and Ornamental Horticulture	16.75	22.25
Home Economics	18.50	14.25
Home Economics and Nursing	17.50	18.75
Industrial Arts	18.25	20.75
Industrial Chemistry	14.50	14.50
Industrial Journalism	8.50	8.75
Industrial Physics	14.50	14.50
Industrial Technology	18.75	19.75
Landscape Design	13.25	12.25
Mechanical Engineering	15.75	16.75
Milling Administration	20.00	12.00
Milling Chemistry	20.00	22.00
Milling Technology	20.00	12.00
Music, Applied*	7.74	7.50
Music Education*	8.50	8.75
Physical Education (Men)	12.25	15.00
Physical Education (Women)	5.50	8.50
Physical Science	16.00	4.50
Preveterinary Year	17.50	16.50
Soil Conservation	24.25	15.25
Veterinary Medicine	23.00	26.00

Military Uniform. Every student who takes military training must have a uniform. For the basic courses the uniform, except shoes, is furnished by the War Department. To insure the return of this uniform, a $10 deposit is required of each basic course student, the deposit to be refunded to the student when the complete uniform is returned to the military department in good condition. The money value of any missing articles will be deducted before the refund is made. The War Department makes an allowance toward the cost of the uniform used in advanced courses.

Late Assignment Fee. Students who are assigned after the close of the regular registration period must pay $2.50. This rule does not apply to the summer sessions.

Audition Fee. An auditor who is neither a student nor an employee of the College must pay a fee of $1 a semester hour for courses audited. See page 21.

Commencement Fee. On graduation and on receiving advanced degrees, students pay a commencement fee of $7.50 to cover the cost of the diploma and commencement activities.

Transcript Fee. Rules governing issuance of transcripts of records:

1. Students may have two transcripts without charge.
2. Each additional transcript costs 25 cents for each year's record.

* Not including sheet music and private lessons.

No student may get his degree or transcript of record if he is financially indebted to the College or any of its departments or subsidiaries.

Refund of Fees. No refund is made on the matriculation fee. Certain refunds are made on other fees, as shown below. No exceptions are made to these rules.

Refunds are given only on the presentation of the fee receipts for various fees paid. Refunds are authorized at the office of the Registrar. The student must keep fee receipts. To be accepted, claims for fee refunds must be presented at the office of the Registrar not later than the end of the semester or summer school for which the fees were paid.

A student permitted to withdraw before the end of the first week of the semester or summer session may receive a refund of all the fees paid for that semester or summer session. The first week ends at 5 p. m. Saturday, following the first day of enrollment.

A student permitted to withdraw after remaining the first week and less than one-third of a semester or summer session may receive a refund of one-half of the fees paid for that semester or summer session.

The unused portion of laboratory fees is refunded. All claims for refunds on laboratory deposits must be made within fifteen days of the close of the semester or summer session.

A student dropping music before the end of a semester or summer session may receive a refund of fees paid, proportional to the remainder of the first three-fourths of the semester or summer session; the fees for at least the last fourth of a semester or summer session are retained.

Other Expenses

Textbooks. The cost of textbooks varies considerably from semester to semester and according to the curriculum chosen. A freshman may reckon with an expenditure of about $20 for new textbooks during his first semester, and of about $15 during his second semester. Certain curriculums require books costing slightly more than these figures; most curriculums require books costing slightly less. For many courses secondhand books are satisfactory.

Drawing Instruments. In several curriculums, especially in architecture and engineering, drawing instruments are necessary. These range in price from $7.50 to $25 a set.

Gymnasium Suits. Every woman taking physical education must have an approved gymnasium suit costing about $2.75. In the major course the suit costs $6.75.

The gymnasium suit for a man costs about $3.50. In the major course the suit costs $9.

Housing

At the present time there is a residence hall for women on the campus which houses 130 women. There are fraternity and sorority houses where a number of students find congenial room and board, and also rooms in the city, approved by the College, where students may live under conditions satisfactory to college authorities. Such a room for two persons costs from $9 to $12 a month each.

The College operates a cafeteria serving all meals, except on Saturday evenings and Sundays. There are also numerous clubs and boarding houses where students may get meals for about $6 a week and up.

All boarding and rooming establishments are regularly inspected by the Department of Student Health, on whose recommendation the Faculty Council on Student Affairs gives certificates of approval. Women should address correspondence about rooms and board to the Dean of Women, and men to the Men's Adviser. In the offices of these faculty members are kept the lists of approved rooms and boarding places, which students should consult as soon as they get to Manhattan, so as to make arrangements for living quarters if they have not already been made.

Duties and Privileges

Students coming to Kansas State have an opportunity to learn personal responsibility for their own lives under the guidance of sympathetic faculty advisers. Every student is very largely responsible for his own affairs as an individual and as a member of the college community. College discipline is usually limited to dismissing from the College those whose further attendance is unprofitable or inadvisable.

There are various societies and clubs that give opportunities for literary, scientific, musical, and forensic activity. See the section on College Organizations, page 27.

Aptitude Tests

Every student who enters the College takes aptitude tests designed to discover in what way he may most satisfactorily direct his efforts. They show in what fields he may best proceed and in what types of work his abilities are strongest. On the basis of such tests, as well as on academic records, advisers and deans can properly place students, and give more satisfactory advice as to occupational aptitudes when recommending students or graduates for positions. No student is advanced in classification until he has completed these tests.

Assignments

A student is responsible for fulfilling all the requirements of the curriculum in which he is enrolled. His assigner and his dean will help him plan his work, but do not assume responsibility for his mistakes. A student should be familiar with the catalogue statements about assignments and curriculums, because the catalogue is the official source of information.

No student may be enrolled in classes or for private lessons in music or other subjects before getting an assignment. No assignment is complete until all fees and charges are paid.

Registration and assignment to courses take place on the dates shown in the College Calendar (page 5). Later assignments are made during regular office hours by a student's dean or assigner, but must be checked by the Registrar as to availability of classes, which are closed when the limit as to number is reached.

A student may not enroll later than ten days after the beginning of a semester or summer session except by permission of his dean. A student who enrolls after the close of the last registration period of a semester must pay an extra fee of $2.50.

A student who wants to take work at other than scheduled times must have the written consent of his dean, the head of the department in which the work is to be done, and the dean of the school in which the department belongs.

Every student must take a full assignment unless excused by his dean. No student may take extra work except by permission of his dean if his grade average for the preceding semester or summer session was below B, and under no circumstances if he was deficient in any subject.

An enrolled student may not carry correspondence work except by permission from his dean.

If a student makes special requests about assignment or asks permission to make up deficiencies by study under an approved tutor, his dean will decide after conferring with the heads of the departments concerned.

Changes in Assignments

Deans will not drop subjects from a student's assignment during the last two weeks of a period covered by midsemester or final scholarship deficiency reports.

No student may drop a course or change an assignment except by a formal reassignment, which can be made only by his dean.

If an instructor has arranged a reassignment, his students must comply with

notices of this reassignment. If not content with the revision, a student may confer about it with his dean.

A student who drops out of class without a reassignment is reported absent.

Withdrawal from College

A student who withdraws from college must have an official withdrawal permit from his dean. Such a permit is effective on the date of issue and may not be antedated. If a student drops a subject before midsemester, a mark of Wd (withdrawn) is reported. If he drops a subject after midsemester, he gets a grade for one-half semester; but a subject dropped at any time after midsemester on account of failure gets a semester grade of F. A student who withdraws during the seventh or eighth week or the fifteenth or sixteenth week of a semester gets a midsemester or semester grade of F for courses in which he is not doing satisfactory work. A sixteen-week summer session is considered a semester.

Auditing Classes

An auditor is one who attends a class regularly without participating in class work and without getting credit. A student or employee of the College who wants to audit a class should confer with his dean. Anyone else should consult the Director of Admissions. The fee for those not connected with the College is $1 a semester hour. Laboratory courses cannot be audited.

Grades

The College uses the following grades:

A, for distinguished work
B, for superior work
C, for average work
D, for merely passing work
F, for failure

Con, conditioned, is used for unsatisfactory work on which an examination may be taken. If the examination is passed, the grade is D; otherwise, it is F. The examination must be taken at the first opportunity. (See the College Calendar.)

Inc, incomplete, shows that a student may have further time to complete the required work. Work for which a grade of Inc is reported must be made up within the first subsequent semester of attendance, or the grade becomes F.

Report of Grades

(1) On the fifth and the ninth Saturday of each semester; (2) not later than 6 p.m. on the last day of the first semester; (3) and not later than 6 p.m. on the day after the close of the second semester, reports of all grades of F, Con, and Inc on those dates are sent to the students concerned and the deans. The dates appear in the College calendar; these reports are an imperative duty of all instructors. The first two reports are made in percentages on a scale of seventy for passing. The reports at the end of the semester are on the letter system.

Students desiring reports of intrasemester grades must supply their instructors with properly filled official cards after the fifth or the ninth Saturday of the semester. Instructors will make reports so requested to the students or send them to the student organizations.

The instructor prepares for each student a semester grade based on the examination and classwork, and must report this to the registrar for record within one week after the close of the semester. Passing grades are not sent to students or parents unless a self-addressed, stamped envelope is left with the registrar with a request for grades.

If a student drops a subject before midsemester, a mark of Wd (withdrawn) is reported. Subjects may not be dropped from assignments within the last

two weeks of a period covered by midsemester or final scholarship-deficiency reports.

If a student withdraws from College before midsemester, a mark of Wd is reported for each subject, irrespective of the standing of the student in the subject except that grades below passing of students withdrawing from College during the seventh and eighth weeks or the fifteenth and sixteenth weeks of a semester are recorded as midsemester or semester grades. Regardless of the time of withdrawal, however, a final grade shall be reported, if all the required work of a course has been completed. If a student goes through the first half of the semester, but not the second half, a half-semester grade is reported for record, and designated as such; but a subject dropped at any time after midsemester on account of failure is given a semester grade of F.

In case of absence from a final examination, no semester grade is reported until the reason for such absence has been learned; within the week after the end of the semester, however, the instructor reports to the registrar a mark of Inc. If the student's absence is inexcusable, a semester grade is reported on the basis of zero for the final examination; but if the absence is excused or excusable, a reasonable time, usually not over one month, is allowed within which the examination may be taken.

The result of an examination to remove a condition is reported in quadruplicate to the dean of the student, who transmits copies to the registrar, the student, and the student's assigner. A special procedure is followed in reporting a grade to replace Inc and in reporting corrections of grades.

Instructors are to leave all classbooks on file in the proper department or with the president of the College when severing their connection with the institution.

Points

For each semester hour of work a student gets points, according to the grades he makes, as follows: A, 3; B, 2; C, 1; D, 0. For graduation or for advancement in classification, the requirement in points is the same as in hours.

Scholarship Deficiencies

PROBATION

If a student in his first year gets grades of F or Con in one-third of his work, he is put on probation for a semester, and his parent or guardian is informed of the fact. Any other student is put on probation for a semester if he gets grades of F or Con in one-fourth of his work. A third such probation results in dismissal from the College.

DISMISSAL

If a student in his first year gets grades of F or Con in one-half of his work, he is dismissed from the College, and his parent or guardian is informed of the fact. Any other student is dismissed if he gets grades of F or Con in two-fifths of his work. After two probations, one probation and one dismissal, or two dismissals, any subsequent probation involves dismissal.

REINSTATEMENT

A student dismissed at the end of a semester is excluded until after the end of the next semester. A sixteen-week summer session is considered a semester. During this period he may not habitually appear on the campus or enter any classes. Any student dismissed for scholarship deficiencies may petition in writing, on a form provided by the College, for immediate reinstatement. The Committee on Reinstatement considers such petitions, granting reinstatement in exceptional cases only.

Absence

Students must attend all meetings of classes. Seniors, and juniors who have done superior work, may be excused from such compulsory class attendance.

Examinations

Final examinations are held at the end of the semester, except for students to be graduated, who take their examinations a few days earlier. A sixteen-week summer session is considered a semester.

A student whose semester grade in any subject is A may be excused from the final examination in that subject.

Examinations to remove conditions are held on the fourth Saturday of each semester. A student with a grade of Con may take such an examination if he makes arrangements with his instructor or department head not later than the previous Tuesday.

Permission for special examination in subjects not taken in class or to make up failures is given by the student's dean on recommendation of the head of the department in which the course is given. A special examination may be given only to a matriculated student.

Entrance examinations in high school subjects are given at the beginning of each semester. (See the College Calendar.) Applications for such examinations should be made to the Registrar. No examination to make up deficiencies in entrance requirements will be given to students who have entered on the fourth semester of work in the College.

Passing grades are not sent to students or parents unless a self-addressed, stamped envelope is left with the Registrar for that purpose. Notifications of failures are sent, however. Reports on tests at the end of five-week and eight-week periods are given to students who supply their instructors with official report cards.

Required Physical Examinations

Because of the nature of the profession, students who enroll in teaching participation must pass a physical examination. All seniors in home economics, and fourth year veterinary students must take a physical examination before graduation. Under no circumstances will a student be deprived of a degree because of the results of a physical examination. Such examinations are optional for all other seniors.

Freshman Induction

Freshmen enrolling for the first time in Kansas State College must meet before upper class registration begins. Because these freshmen are separately assigned before the other classes, they have the entire attention of the assigners, and opportunity to get desirable class schedules. Their deans and faculty advisers meet them in small groups to discuss their work and plans, to take them on tours of the campus, and to introduce them to other members of the faculty. The freshmen may meet the clergymen of the Manhattan churches and get acquainted with the officials of the Y. M. C. A. and the Y. W. C. A., the Student Governing Association, and the Collegiate 4-H Club. Before the first classes meet, the freshmen will have had their physical examinations and their personality and aptitude tests, and the benefit of other induction activities. They will be ready to begin their classwork with some understanding of the College and its methods, and some acquaintance with faculty, students, and townspeople.

Honors

In each School not more than five percent of the sophomore class having the highest standing get *sophomore honors*. These honors are reckoned only on courses completed in this college.

On graduation not more than ten percent of the members of the senior class having the highest standing get *senior honors*. These honors are determined on courses completed in this college.

Classification of Students

A student who is a high school graduate, or offers fifteen acceptable units of high school work, is classified as a freshman. He is advanced to a higher class when he has credit in hours and points nine less than the number required for the next year of the curriculum. A student deficient in entrance units is not advanced in classification, nor is one who has not satisfactorily completed required entrance tests.

Credits for Extracurricular Work

Students may earn credit toward graduation by satisfactorily participating in certain extracurricular activities. These activities, and the maximum of semester hours of credit allowed, are as follows:

Subject	*Semester*	*Total*
Orchestra	½	4
Band	½	4
Choral Ensemble	½	4
Debate	2	4
Oratorical Contest	2	4
Kansas State Collegian journalism	1	4
Agricultural Student journalism	1	4
Kansas State Engineer journalism	1	4

Credits may be counted as electives in the student's curriculum, or substituted for required subjects if the curriculum does not offer sufficient elective opportunity. A student may have not more than eight semester hours in these subjects, and not more than two in a semester.

A student is regularly assigned to these activities, but only on the written recommendation of the instructor in charge of the work.

Bible Study

Bible study is an elective for which two semester hours of credit may be given for each one-year course, but not for more than two courses. Instructors must have college approval as tutors. The Department of Education supervises the work and gives examinations for credit.

Course Numbers

Courses for undergraduates only are numbered from 101 to 199; those for undergraduates and graduates, from 201 to 299; those for graduates only from 301 to 399. Each department numbers its courses independently. Courses which do not carry college credit are numbered below 100.

Classes

Classes are organized for a minimum of 15 freshmen or 7 members of higher classes.

Assemblies

About once a week classes are dismissed for an hour, during which students and faculty gather in the auditorium for an assembly program. Often the program is an address by a visitor who is an authority in some field of interest to the College; sometimes it is musical, given by visiting or local artists; and it is often of a religious and devotional nature. The programs are designed as part of the liberal education offered to students, and not as entertainment.

Student Health

The Department of Student Health is supported by the student-health fee fund.

The offices of the department, in Anderson Hall, are open to students each school day from 7:45 a. m. to 5 p. m. Students have the privilege of consulting any of the college physicians on any question of personal hygiene.

Students who need medical service and are able to walk should go to the department offices, unless there is a possibility that they have a contagious disease. The health department observes the same holidays and vacations as other departments of the College.

The College hospital is ready to receive students at any hour of the day or night, but patients are admitted only on the recommendation of staff physicians. Hospital service does not include major surgical cases, such as appendicitis, hernia, etc. If such a case develops while the student is in the hospital, he will be transferred, at his own expense, to a hospital of his choice. The College physicians are not required to treat chronic diseases, but, if practicable, may handle them as they do acute cases. They do not treat fractures and dislocations of a serious nature, but may handle minor cases at the option of the head physician. Students with fractures are admitted to the hospital.

During a regular semester and the sixteen-week summer session, not to exceed three days of hospitalization may be provided for each student without charge; thereafter, a charge of $1 a day is made. During an eight-week summer session, not to exceed two days of hospitalization may be provided for each student without charge. Students admitted to the hospital or remaining in the hospital at a time for which the student-health fee has not been paid, or during Christmas holidays, will be charged $2 a day for hospitalization.

The following charges are made for special services, which are optional: (1) for X rays: $1 for large-sized films, 50 cents for medium-sized films, 25 cents for small-sized films, and 10 cents for single dental films; (2) for each basal metabolism test, 75 cents. All ordinary medicines and dressings are furnished free, both at the hospital and at the dispensary. The services of the college physicians and standard hospital nursing service are free; but a student may employ, at his own expense, any physician or private nurse he may desire.

The College Library

The general College Library consists of all books belonging to the College, including the library of the Agricultural Experiment Station, which is incorporated with it. The Library contains 145,000 bound volumes, besides much unbound material. It receives currently about 1,300 serial publications. As a depository the Library receives the documents and other publications of the United States government.

Reading Rooms. Three reading rooms are maintained in connection with the Library: the general reference room, containing encyclopedias, dictionaries, atlases, bibliographies, and general reference books; the special reference room, containing books reserved for classes; and the periodical room, containing current magazines and the important daily and weekly Kansas newspapers.

School Libraries. School and departmental collections are deposited in certain College buildings apart from the main library. These collections are for the special convenience of the instructors and students of the department concerned.

College Publications

The Kansas Industrialist is the official newspaper of the College, published weekly and printed by the Kansas State College Press. It contains college and alumni news. Active members of the Alumni Association get the Industrialist free. Subscriptions by others are $3.

The Kansas State Collegian, a newspaper, and Royal Purple, the college yearbook, are published by the Board of Student Publications.

The Kansas Agricultural Student is issued quarterly by the Agricultural Association of the School of Agriculture. The Kansas State Engineer is published by students in the School of Engineering and Architecture.

College Post Office

The College operates a post office, which is not a part of the United States postal service, but to which students and faculty may have their mail delivered. Mail arrives from the Manhattan post office twice a day. The College

post office sells stamps, but not money orders, and insures and registers mail. It also facilitates intercommunication of College departments and communications of faculty with students. All students should call for their mail at least once every two days, and preferably every day.

Parking Regulations

Public Parks. There are two public automobile parks for general use by students, faculty members, employees, and visitors. One of these is northwest of Engineering Hall and the other is north of Waters Hall. Permits are not required for the use of these parks.

Restricted Parks. To accommodate those having special need for parking spaces, a few small parks have been provided; permits for the exclusive use of space are issued when necessary. Each space is assigned to a certain car and may be used by that car only.

Parking on Driveways. Parking is not permitted on driveways except during public exercises, and for a short time before and after them.

Self-Support

Students of limited means are encouraged as much as possible, but if they have to give much time to self-support they should take lighter assignments of college work and extend their courses. A student ought to have money for the first semester, as he will need some time to make acquaintances and find suitable work.

The College employs student labor at rates varying from 40 to 60 cents an hour, according to the nature of the employment and the experience of the employee. Most of this labor is on the College farm, in the orchards, and gardens, in the shops and the printing office, and for the custodian. Students of exceptional ability are sometimes employed in special duties about the College. Many students get employment in town, and there is some opportunity for obtaining board in exchange for work with families.

The College does not guarantee student employment. The Y. M. C. A., however, has an employment bureau for men, and the office of the Dean of Women has one for women.

Foreign Students

The College welcomes students from other countries and coöperates in every way possible with the various agencies in charge of student exchange. While students from other countries are expected to have preparation equivalent to that of high school students in this country, the College holds, for those who need it, a special noncredit course in English, designed to increase facility in the use and understanding of English. It is taught by members of the faculty who are aware of problems connected with learning foreign languages and who will give individual attention such as many students need.

College Organizations

The Student Governing Association

The governing association of the student body was organized in the spring of 1919, as the Student Self-governing Association, and reorganized in the spring of 1926 as the Student Governing Association.

The executive council of the association consists of seven members, elected by the student body each spring for the following school year. The council discharges all executive functions of the association, and sits as a court in disciplinary cases. Actions of the council are subject to approval by the faculty council. In cases if disagreement which are not compromised successfully, the decision of the president of the College is final.

Officers of the association are president, vice-president, secretary, and treasurer, elected by the council. Though the council sits as a committee of the whole in all its affairs, certain members are put in charge of certain activities, such as discipline, social affairs, etc. Membership in the student association follows payment of the student activity fee.

Religious Organizations

THE YOUNG MEN'S CHRISTIAN ASSOCIATION

All men students are welcome as members of the College Y. M. C. A. The work of the organization is carried on by a student cabinet, composed of the officers and the chairmen of the standing committees. Each year a freshman commission is organized for the benefit of the new men, especially those who have had Hi-Y experience. The Y. M. C. A. maintains an employment bureau for men students, and has a complete list of rooms and boarding places for men. The permanent secretary is glad to correspond with prospective students and to receive them for interviews.

THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION

The College Y. W. C. A. maintains an office and a reading room. The full-time secretary has the assistance of the student leaders of the association and of a group of local women. Through its college sister work the association endeavors to reach every new woman student. Any young woman who expects to enter College may write to the secretary of the association for assignment to a college sister who will help her to make campus adjustments during the opening weeks of the College year. Coöperating with the dean of women, the association helps women students to find satisfactory rooms and boarding places, and maintains an employment bureau for them.

RELIGIOUS FEDERATION

The Religious Federation of Kansas State College is composed of representatives of the College Y. M. C. A. and Y. W. C. A., and students in all church groups that wish to coöperate. Each fall the Federation sponsors Christian Affirmation Week, and during the year it fosters four union meetings of all the coöperative groups. It also promotes many activities of the member groups.

There are thirteen recognized religious organizations for College students sponsored by various Manhattan churches.

Honor Societies

Phi Kappa Phi. A national fraternity. Membership is open to honor students in all departments, on the basis of scholarship. The Kansas State chapter was installed in 1915.

Sigma Xi. A national fraternity. Members of the faculty and graduate students are eligible for election to active membership on the basis of achievement in original scientific investigation; seniors who have shown excellence in two departments of science are eligible for election to associate membership. The Kansas State chapter was installed in 1928.

Alpha Zeta. A national fraternity. Students in agriculture with outstanding records in extracurricular activities who rank scholastically in the upper two fifths of their class are eligible for election to membership. The Kansas State chapter was installed in 1909.

Gamma Sigma Delta. A national fraternity. Seniors in agriculture and agricultural engineering, and fourth-year veterinarians are eligible for election by the faculty members of the local chapter on the basis of scholarship. The Kansas State chapter was installed in 1914.

Omicron Nu. A national sorority. A percentage of seniors and juniors in home economics are eligible for election to membership by the active faculty and student members of the local chapter on the basis of scholarship, leadership, and research in home economics. The Kansas State chapter was installed in 1915.

Sigma Tau. A national fraternity. Juniors and seniors in engineering and architecture are eligible for election to membership on the basis of scholarship, sociability, and practicality. The Kansas State chapter was installed in 1912.

Professional Organizations

Election to membership is based on unusual achievement.

Alpha Kappa Psi	Business Administration
Alpha Mu	Milling
Eta Kappa Nu	Electrical Engineering
K Fraternity	Athletics
Mortar and Ball	Military
Mu Phi Epsilon	Music
Phi Alpha Mu	General, Women
Phi Delta Kappa	Education
Phi Epsilon Kappa	Physical Education
Phi Lambda Upsilon	Chemistry
Pi Kappa Delta	Debating
Pi Mu Epsilon	Mathematics
Pi Tau Sigma	Mechanical Engineering
Quill Club	Writing
Scabbard and Blade	Military
Sigma Delta Chi	Journalism, Men
Steel Ring	Engineering
Tau Epsilon Kappa	Architecture
Theta Sigma Phi	Journalism. Women

Honorary Organizations

Election to membership is based on leadership in student affairs.

Blue Key	Senior Men
Mortar Board	Senior Women

American Chemical Society

The Kansas State College section of the American Chemical Society arranges during the school year for monthly meetings which are usually addressed by visiting chemists.

The Graduate Club

The Graduate Club is an organization composed of graduate students and members of the graduate faculty. Its purpose is to promote sociability and acquaintance among its members.

Agricultural Societies

The Agricultural Association meets regularly once a month. All students enrolled in the School of Agriculture are members. The objectives of the association are to encourage and support agricultural activities, to correlate the work of various clubs and other organizations of students within the school; and, in general, to have leaders elected and authorized to speak for the student body of the school at all times.

Departmental clubs of the school are the Agricultural Economics Club, Block and Bridle Club (animal husbandry), Dairy Club, Horticultural Club, Klod and Kernel Klub (agronomy), and the Poultry Club. Membership in these clubs is open to students and faculty of the school who are specially interested in the fields represented by the respective clubs.

The object of the clubs is to expand the interest and familiarity of the students in the fields and industries most closely related to the department in which they are majoring. Meetings and social affairs further the acquaintance of faculty and students. Student officers preside at the meetings and plan the programs, many of which are presented by students, though frequently faculty members or other speakers participate. Usually a student belongs to the club representing the department in which he is majoring, while many belong to more than one.

Engineering Societies

All students enrolled in the School of Engineering and Architecture are members of the Engineering Association, which usually meets once each month. The students in agricultural, chemical, civil, electrical, and mechanical engineering are organized as student branches of the American Society of Agricultural Engineers, the American Institute of Chemical Engineers, the American Society of Civil Engineers, the American Institute of Electrical Engineers, and the American Society of Mechanical Engineers, respectively. Students in architecture are organized as a student branch of the American Institute of Architecture.

The purpose of these various societies is to acquaint the students with the latest developments in engineering and architecture, to give them more definite ideas as to the opportunities and the requirements for success in their professions, to promote acquaintance and fellowship among the students, and to further the interests of the School of Engineering and Architecture in the College and in the state.

Popenoe Club

The Popenoe Entomological Club meets twice a month. The object of the club is to promote interest in entomological work at the College. Membership is open to students and faculty members interested in insects. Entomological topics are discussed by members of the club and outside speakers. The club sponsors occasional field trips.

Home Economics Club

The Margaret Justin Home Economics Club includes all students in the School of Home Economics. Its purpose is to promote professional interest by means of social contacts and talks by leaders in home economics. It is affiliated with the American Home Economics Association and leads to continued membership in that organization after graduation.

Veterinary Medical Association

The Junior Chapter of the American Veterinary Medical Association is a student organization in affiliation with the American Veterinary Medical Association. The object of the chapter is to promote interest and knowledge in veterinary science. The organization meets on the second and fourth Tuesdays of each month; students present papers, and members of the faculty and outside speakers also appear on the program.

Collegiate 4-H Club

The Collegiate 4-H Club is composed of former 4-H Club members among the College students. Its purpose is to maintain the interest of its members in extension and 4-H Club work, to develop more effective leadership in such work, to maintain and increase a loan fund for 4-H Club members in college, and in general to aid and promote the well-being of former 4-H Club members at Kansas State College. It participates actively in many campus activities and lends its aid to the various extension activities conducted on the campus or in connection with the College. The club publishes each year the yearbook of 4-H Club work in Kansas known as the "Who's Whoot." Outside speakers are frequently secured, and the organization sends representatives to various national or interstate student conventions or meetings.

The College Bands

The three College bands, the Concert Band, the Varsity Band, and the Military Band, are student organizations, membership in which is voluntary. The Concert Band is limited in membership to men only, meets for rehearsal or drill three times a week, plays a number of concerts, and performs for various functions on and off the campus.

The Varsity Band is in part a training unit for the Concert Band. It is open to the entire student body, women being admitted after December 1, when the outdoor drill season closes. It meets three times a week for drill or rehearsal, plays several concerts, and performs for various functions on the campus.

From the opening of school in the fall until December 1, the two bands are drilled together to form a marching band, which plays for football games and other outdoor spectacles.

The Military Band is a strictly military organization, made up of Basic Course R. O. T. C. members who are assigned to Military Band duties in lieu of drill and technical military instruction. It is limited in its membership, and attendance of the members upon the exercises is obligatory.

Membership in all band units is determined by competitive tryouts. Regular assignment to Concert Band or Varsity Band may carry one-half hour of credit a semester.

Men pay a membership fee of 50 cents for the Concert and Varsity bands and a deposit of $2.

The College Orchestra

The Orchestra is an all-college organization under the direction of a member of the music department. Membership is on a voluntary basis and is open to all musically qualified students, college staff, and others interested. The Orchestra library is adequately stocked with standard symphonic works and lighter classics, and each season's repertoire is selected to fit the capabilities of the ensemble.

The Orchestra plays one or more formal concerts each season, appears informally both on and off the campus, and accompanies the vocal ensembles in the presentation of traditional Christmas and Easter music.

Kansas State Players

Membership in the Kansas State Players is open to all students, both men and women, through tryouts and participation. The object of the Players is to afford its members an opportunity to become acquainted with good drama and to take part in the various activities connected with the producing of plays. Regular meetings are held the first Monday of each month.

The presentation of several plays a season gives the members of the Players an opportunity for practical training and interesting experience in the various phases of dramatic production.

Athletics

Kansas State College is a member in good standing of the Big Six Conference, and participates in all intercollegiate athletics of the conference. Although only the most proficient men enter intercollegiate contests, all students have opportunity to participate in a full program of sports and athletics and to get sound instruction.

Under the auspices of the Women's Athletic Association, the women students of the College take part in a full athletic program, with competent instruction by the faculty of the Department of Physical Education.

Cosmopolitan Club

There is in the College a chapter of the Association of Cosmopolitan Clubs in Universities and Colleges of America. The active membership consists of foreign and American students, both men and women. The objective of the club is to promote international understanding through friendship among students of various nationalities.

Loan Funds

Student loan activities are coördinated in the office of the executive secretary of the Alumni Association of Kansas State College, Anderson Hall. A student wishing to apply for a loan from any fund listed below should address his request to Kenney L. Ford, secretary, K. S. C. Alumni Association.

The State Board of Regents has established rules governing the administration of student loan funds. These rules include the following:

1. A student loan is made only when a note is signed by the borrower and one other responsible person, preferably the borrower's parents or guardian. This endorser must be recommended by his bank as of good financial standing and otherwise satisfactory as an endorser.
2. In general, loans will be made only to juniors, seniors, and graduate students who have attended Kansas State College for at least one semester, and preferably for one year, and who have a scholarship average of at least C.
3. The maximum total amount loaned from all loan funds to one individual usually shall not exceed $250.

The Alumni Association of Kansas State College has created a loan fund, chiefly from payments for life memberships in the association. Members pay the association $3 a year, but on payment of $50 in one sum they are relieved from further dues. If husband and wife are both eligible for membership, they may obtain joint membership by paying $75. The fund so created is administered by a committee appointed by the directors of the Alumni Association. The committee announces no specific rules governing the granting of loans, but in general gives preference to junior and senior students, and to loans of smaller amounts on short time over larger amounts which cannot be paid for several years. Interest is charged at the rate of six percent a year.

All loan funds directly managed by the College, including the alumni loan fund, now total about $160,000.00.

Other student loan funds are available which are not administered by the College. For women, some funds are provided by the American Association of University Women, the State Federation of Women's Clubs, the Women's Panhellenic, and P. E. O. Applicants for loans from these funds should address the organization from whom they wish to borrow.

For juniors and seniors, the Knights Templar Commandery has established a loan fund. Application should be made through a commandery where the applicant is known. The Order of the Eastern Star has a fund for juniors and seniors who are members or children of members. Applications should be sent to the Grand Secretary, the Order of the Eastern Star, National Reserve Building, Topeka, Kan.

Gifts, Memorials, and Bequests

The Kansas State College Endowment Association is incorporated under the laws of Kansas to accept and administer gifts and bequests to the College. Anyone wishing information about the Association may write to the Secretary of the Association, Waldo E. Grimes, Kansas State College, who will be happy to send a booklet of information and to answer any specific questions that may be asked.

The booklet outlines some of the principal needs of the College, and explains fully how friends of the College may perpetuate their interest in Kansas State by sharing in the activities of the Association.

Scholarships and Assistantships

SCHOLARSHIPS

Borden, in Agriculture. The Borden Agricultural Scholarship will be awarded annually, under normal conditions, and the amount of each annual award will be $300. The Scholarship will be presented to the senior in the School of Agriculture who, upon entering his senior year, has achieved the highest aver-

age grade of all similarly eligible students in all preceding college work, and who has completed two or more dairy subjects as a part of this college work.

Borden, in Home Economics. A scholarship of $300 awarded annually by the Borden Company to the senior student who has taken advanced courses in food economics and nutrition and has maintained the highest scholastic rating and shown other indications of promise of growth. Selection is made without application by the committee on scholarships, School of Home Economics, on the records of students.

Capper. $300. The annual gift of Senator Arthur Capper, divided equally between the boy and the girl standing highest in the 4-H leadership project in Kansas.

Eastern Star. The Grand Chapter of Kansas, Order of the Eastern Star, has made available a scholarship of $100, to be given on merit only to a junior for use in the senior year. The winner is selected by the college and approved by the Scholarship Board of the Grand Chapter. Those eligible are Masons, members of the Order of the Eastern Star, children of Masons of Kansas, and children of members of the order of Eastern Star of Kansas.

Carl Raymond Gray. In honor of the late president of the Union Pacific Railroad, who initiated the award in 1921. Scholarships of $100, awarded each year by the Union Pacific Railroad Company to one student in vocational agriculture and one member of a 4-H Club in each of the thirty-six counties in Kansas served by the railroad. Awards are made by a local committee in each county, and are based on quality and quantity of project work, records kept, character, interest, and scholastic standing. The scholarships may be used to enroll for a full-year course in agriculture or home economics at Kansas State College, but not for other courses.

Home Demonstration Agent Association, in Home Economics. One scholarship of $75, the annual gift of the Home Demonstration Agent Association to the farm girl who is the most outstanding student in Home Economics from the county high schools of the state, in those counties where there are Home Demonstration Agents. Applications are submitted through the Home Demonstration Agent in the county of the student's residence. The scholarship may not be held concurrently with any other scholarship.

La Verne Noyes. About twenty scholarships annually of $50 each from funds from the estate of La Verne Noyes, to deserving and necessitous students who served in the Army or the Navy of the United States between April 6, 1917, and September 11, 1918; or are descended by blood from some one who so served. Enlistments must have been previous to May 11, 1918, unless active overseas, prearmistice service was rendered. The student's dean must have all applications by August 1.

Sears, Roebuck, in Agriculture. Scholarships of $150, the annual gift of Sears, Roebuck and Company to leading high-school graduates who have distinguished themselves in 4-H Clubs or in vocational agriculture, and whose attendance at college is dependent on such an award. Winners of these scholarships must enroll in the School of Agriculture. Application is made through the County Agent.

Sears, Roebuck, in Home Economics. Ten scholarships of $200 and five of $100, the annual gift of the Sears, Roebuck Foundation to leading high school graduates who have distinguished themselves in their high school work and in community services, and whose attendance in college is dependent on such an award. Winners of these scholarships must enroll in the School of Home Economics. Application is made to the Dean, School of Home Economics, and is to be sustained by recommendation from Home Economics teachers and Home Demonstration Agents. Application blanks may be obtained from the Dean, School of Home Economics. Applications are received to February 15 and awards announced by March 1.

Fay N. Seaton, in Industrial Journalism. A scholarship or scholarships totaling not more than $300 annually, available each year for undergraduate or graduate students in the Department of Industrial Journalism and Printing, from funds presented by Fay N. Seaton, Manhattan newspaper publisher. Winners of these "working" scholarships must perform appropriate service for the department in return for the scholarships.

GRADUATE ASSISTANTSHIPS

Graduate assistantships and graduate research assistantships have been established for some years by action of the Board of Regents and are available in several departments of the College. See The Graduate School.

Prizes and Medals

PRIZES

Klod and Kernel Klub. Cash prizes, trophies, merchandise, and subscriptions to farm papers; for grain judging.

Department of Mechanical Engineering. Payment of the first year's dues, Junior Membership, in the American Society of Mechanical Engineering, for the senior mechanical engineering student of outstanding scholastic and extracurricular attainments.

American Institute of Chemical Engineers. A certificate of merit to the sophomore in chemical engineering ranking highest in his freshman year.

American Society of Civil Engineers. Payment of the initiation fee into the American Society of Civil Engineers; to the civil engineer ranking highest during his senior year.

American Society of Mechanical Engineers. An award for outstanding leadership in the activities of the Student Branch of the Society.

Capper. The leading student in agricultural journalism each year has his name engraved upon one of the several small shields surrounding a larger shield bearing the words: "Recognition for superior attainments in Agricultural Journalism. Presented by Arthur Capper to students in the Department of Industrial Journalism and Printing, Kansas State College."

Journalism Memorial Fund. Each year two or more awards of $25 each are made by the Journalism Memorial Fund Committee of the Department of Industrial Journalism and Printing. These awards are made from funds contributed as memorials to graduates and former students of the Department who are casualties in World War II. Appropriate medals also are presented in connection with these awards.

Kansas Magazine Award. The Kansas Magazine Publishing Association makes a $25 annual award and presents a medal for the best literary contribution made by a student of the College. This award is made through the Journalism Memorial Fund Committee as a memorial to graduates and former students of the Department of Journalism who are casualties in World War II.

Chi Omega. By the Kappa Alpha Chapter; $25 to the woman ranking highest in sociology at the end of the first semester.

Margaret Russel Scholarship Award. By Phi Alpha Mu; $25 to the junior woman enrolled in the School of Arts and Sciences ranking highest at the close of the second semester of her sophomore year. To be eligible a student must have done her sophomore work in the School of Arts and Sciences in Kansas State College.

Phi Beta Kappa. $10; to the highest ranking eight-semester senior in the general curriculum.

Pi Tau Sigma. A set of Kent's Mechanical Engineering Handbooks to the mechanical engineering sophomore who has done the most outstanding work in his freshman year.

Quill Club. $10; for the best short story in the annual contest.

Omicron Nu Scholarship Award. $10; to the highest ranking freshman in the School of Home Economics.

Prizes in Veterinary Medicine

Dr. N. D. Harwood, '18. $7.50 and $7.50; to second-year students ranking highest in anatomy and in physiology.

Dr. Benjamin F. Pfister, '21, and Dr. Earl F. Hoover, '24. $10 and $5; to third-year students ranking highest in therapeutics.

Dr. O. M. Franklin, '12. $10 and $5; to fourth-year students ranking highest in pathology.

Dr. C. W. Bower, '18. $10 and $5; to fourth-year students leading in work in small animal clinic.

Kansas Veterinary Medical Association. $15 and $10; as prizes in general proficiency; to fourth-year students.

MEDALS

Block and Bridle Club. Gold, silver, and two bronze; for stock judging.

Student Dairy Club. Gold, silver, and bronze; for dairy judging.

Alpha Zeta. To the agricultural student ranking highest in scholarship in the freshman year.

Alpha Rho Chi. To the graduating senior in the Department of Architecture selected for leadership and professional merit.

American Institute of Architects. To the leading senior architect.

Sigma Tau Scholarship Award. To three sophomore engineering students ranking highest in their freshman year.

Alpha Kappa Psi. By the Alpha Omega Chapter; a scholarship medallion to the highest ranking junior man enrolled in the curriculum in business administration.

Oratory. By the literary societies through the Inter-Society Council; three cash and medal prizes in the Inter-Society Oratorical Contest.

By the Missouri Valley Oratorical Association; cash and medal awards in its annual contest.

The Graduate School

JAMES EDWARD ACKERT, *Dean*

Admission

Admission to graduate study is granted to graduates of institutions whose requirements for the bachelor's degree are substantially equivalent to those of Kansas State College. Admission to graduate study, however, may not be construed to imply admission to candidacy for an advanced degree. Such candidacy is determined after the student has demonstrated by his work for a period of two months or longer (M.S.), or approximately two years (Ph.D.), that he has the ability to do graduate work of major rank.

Correspondence regarding admission to graduate study should be addressed to the Dean of the Graduate School, who will on request supply the required application blanks. Each applicant who is not a graduate of this College must submit with his application an official transcript of his college record.

Registration

Students who have been admitted to graduate study register, obtain their assignments from the Dean of the Graduate School, and pay their fees during the regular registration periods.

Fees*

Graduate students are subject to the same fees as other students, except that (1) they pay the student-activity fee in summer school only;† (2) graduate students enrolled for 10 or more semester hours of college work during the regular academic year or for 6 or more semester hours of college work during the summer school may elect to pay the regular student-health fee and to receive the regular student-health service provided that the election is made and the fee paid at the time of enrollment; (3) the fee for problem or research work pursued *in absentia* or for vacation credit is $2.50 a semester hour; and (4) graduate assistants may pay incidental fees on an hourly basis, provided that they do not enroll for more than ten hours during a semester, nor more than six hours during an eight-week summer session.

Assignments

Not more than sixteen hours including research, may be assigned in a single semester, nor more than nine hours during the eight-week summer school. Students holding graduate assistantships may not be assigned to more than twelve hours, including thesis, in one semester.

Grades‡

A candidate for an advanced degree must make a grade of B or higher in three-fourths of the hours taken for the degree, including research. A failure or absence from examination in any course may prevent the conferring of the degree, and failure in any course in the major field precludes conferring the degree in the same year.

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* See section headed Fees, under General Information.

† Graduate students may have the student-activity benefits by paying the regular student-activity fee.

‡ See section headed Grades, under General Information.

Degrees

Of the advanced academic degrees, the College confers the degrees Master of Science and Doctor of Philosophy. Degrees are conferred at the end of each semester and of the first and second eight-week summer sessions. Candidates for advanced academic degrees are required to be present at commencement exercises in the academic costume and hood appropriate to the degree, unless arrangements have been made in advance for the conferring of the degree *in absentia*. Applications for this privilege should be made to the Dean of the Graduate School.

General Requirements for the Degrees Master of Science and Doctor of Philosophy

Candidates for the degrees Master of Science and Doctor of Philosophy are expected to assume initiative and responsibility. It is important to recognize that graduate work does not consist in the fulfillment of routine requirements alone. The various courses, as well as the assistance and advice of the instructors, are to be regarded simply as aids in acquiring the methods, discipline, and spirit of independent research.

Each candidate for a degree is expected to have a comprehensive knowledge of his subject and of related lines of work, which usually is obtained only by a wide range of private reading and study outside of the immediate field covered by the formal courses to which he may be assigned.

The branch of knowledge to which the student expects to devote the larger part of his time is termed his major subject. The other fields of study selected, which necessarily are more restricted in scope, are termed minor subjects. The latter should be so chosen as to make the candidate proficient in a second field.

Approximately two-thirds of the student's time is devoted to his major subject and one-third to one or more minor subjects. The word subject is used to designate a recognized field of study, and is not defined by the limits of a department. The nature and distribution of the majors and minors (program of study) are approved by the Graduate Council, upon the recommendation of the major instructor and the head of the department (M. S.), or of the supervisory committee (Ph. D.)

The approved program of study is the basis of the formal assignment to courses at the beginning of each semester and of the summer school.

Courses numbered in the two hundreds are open to both graduate and undergraduate students. For graduate credit in such courses, the student must do extra work, the nature and amount of which are determined by the instructor.

Requirements for the Degree Master of Science

Major work leading to the degree Master of Science is offered in the following departments or major fields:

School of Agriculture:

- Agricultural Economics
- Agronomy
- Animal Husbandry
- Dairy Husbandry
- Genetics
- Horticulture
- Milling Industry
- Poultry Husbandry

School of Engineering and Architecture:

- Agricultural Engineering
- Applied Mechanics
- Architecture
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Machine Design
- Mechanical Engineering
- Shop Practice and Industrial Arts

School of Arts and Sciences:

Bacteriology
Botany and Plant Pathology
Chemistry
Economics and Sociology
Education*
English
Entomology
Geology
History and Government
Industrial Journalism
Mathematics
Parasitology
Physical Education
Physics
Psychology
Speech
Zoölogy

School of Home Economics:

Art
Child Welfare and Euthenics
Clothing and Textiles
Food Economics and Nutrition
General Home Economics
Household Economics
Institutional Management

School of Veterinary Medicine:

Anatomy and Physiology
Pathology

Minor graduate work is offered in each of the above departments and in the departments of Modern Languages and Surgery and Medicine.

Residence and Credit Requirements. Candidates for the degree Master of Science (M.S.) are required to spend one academic year in residence, except under certain special conditions when the residence may be reduced to one and one-half semesters, or three eight-week summer schools.

Two plans are available for obtaining the Master's degree. Subject to the approval of the major department the candidate for the Master's degree may choose

Plan 1. With the Master's thesis. Requirements: 30 semester hours of graduate credit including a Master's thesis of six to ten semester hours; or

Plan 2. Without the Master's thesis. Requirements: 30 semester hours of graduate credit and a written report (Master's report) on a topic in the major field.

The specifications of the Master's report are that it exhibit ability by the candidate to trace library information, make interpretations, and use commendable English. On completion the typewritten report in duplicate is submitted for approval to the major instructor, the head of the department, and the chairman of the Graduate Council. On being approved, the original copy is filed in the major department and the carbon copy in the Graduate Office.

In the case of Plan 2 the Master's report is in addition to 30 semester hours of graduate credit and not a report prepared in connection with a credit course.

Master's Thesis. Each candidate who chooses Plan 1 is required to present a thesis on some subject approved by the major instructor, the head of the department, and the Graduate Council. (See general requirements for the master's and doctor's degrees.)

The thesis ordinarily demands one-fourth of the students' time, and may not exceed one-third of it. The thesis and special reports upon it must be prepared in accordance with specifications to be obtained from the office of the Dean of the Graduate School. On completion, the thesis must be approved by the major instructor, the head of the department, and the Graduate Council.

A candidate for the master's degree is subject to an oral examination covering the major and minor subjects and thesis or Master's report by a committee selected from instructors with whom the major and minor work was taken, the head of the major department, and a member of the Graduate Council as chairman. The dean of the school in which the major work is offered is a member ex officio.

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* In graduate work in education, major emphasis is placed upon rural and vocational education.

Requirements for the Degree Doctor of Philosophy

Departments Offering Major Work. Major work leading to the degree Doctor of Philosophy is offered in the following fields: Bacteriology, Chemistry, Entomology, Plant Genetics, Poultry Genetics, Genetics, Milling Industry, and Parasitology. Minor work for this degree may be chosen in the departments offering major work for the degree and in supporting fields in other departments offering graduate work.

Residence and Credit Requirements. At least three years (of nine months each) of graduate study beyond the bachelor's degree, equivalent to 90 semester hours, including a thesis, are required of candidates for the degree Doctor of Philosophy. At least one year of this time must be spent in residence at this College.

Language Requirements. Each candidate for the degree Doctor of Philosophy must demonstrate to the head of the Department of Modern Languages or to members of his staff designated by him, ability to read the literature of the major field in two modern foreign languages, to be designated by the supervisory committee. The language requirements shall be fulfilled before the preliminary examinations are taken.

Supervisory Committee. For each student who contemplates working for the degree Doctor of Philosophy, a supervisory committee is chosen by the Dean of the Graduate School. This committee, consisting of not fewer than five members representing the major and minor fields, aids the student in the preparation of the program of study, which must be approved by the Graduate Council, and has charge of all examinations except the language examinations. The chairman of the preliminary and final examinations is a member of the Graduate Council.

Majors and Minors. Approximately two-thirds of the graduate work (program of study) shall be in a major field and the remainder devoted to one or two minors. In exceptional cases, all the graduate work may be chosen in one field. The work in the major field may be taken wholly within a department or it may include closely related courses and problems in other departments or schools of the College. The same principle applies to the minor or minors. (See general requirements for the degrees Master of Science and Doctor of Philosophy.)

Program of Study and Examinations. Students enrolling in graduate study leading to the degree Doctor of Philosophy work on a tentative program of study until approximately two-thirds of the program, including a substantial portion of the thesis, has been completed. Ordinarily at the close of the second year of graduate study, and not later than the beginning of the year in which the student contemplates receiving the degree, the candidate must pass written and oral preliminary examinations over the entire field of study. When the student has passed the language examinations and the preliminary ones, he is recommended by the supervisory committee to the Graduate Council for admission to candidacy for the degree Doctor of Philosophy. The program of study leading to the degree accompanies the recommendation.

On completion of three years of graduate study as prescribed in the program of study and on submission of a thesis satisfactory to the supervisory committee, at least one month before commencement, the candidate is given the final examination.

Doctor's Thesis. Early in the graduate work a thesis subject is chosen in the major field and approved by the supervisory committee. The finished thesis must constitute a contribution to knowledge, either presenting conclusions from new material, or reinterpreting previous knowledge. Three complete typewritten copies of the thesis approved by the supervisory committee shall be submitted to the Dean of the Graduate School at least one month before commencement. On the completion of all requirements for the degree,

two copies shall be placed in the College library and the other filed with the head of the department in which the major work is taken.

Before the degree is conferred the candidate shall guarantee the printing of the doctor's thesis (wholly or in part as determined by the supervisory committee) within three years after the date of the conferring of the degree. This guarantee shall be either a statement from the editor of an appropriate technical serial or publishing company that the thesis has been accepted for publication or shall be in the form of a bond acceptable to the Graduate Council. When the thesis has been published, 125 copies shall be consigned to the College library. If publication of the thesis, entire or in part, is desired before the degree is conferred, permission must be obtained from the Graduate Council.

Vacation Credit

Two semester hours of graduate credit in problem or research work may be earned between the close of the summer school and the beginning of the first semester, provided that permission to do so is secured in advance from the major instructor and from the Dean of the Graduate School.

On completion, this credit, which is assessed on a pro rata basis, will be included on the student's next assignment, marked "vacation credit," and will be in addition to the regularly allowed number of hours assigned. Such credits will be forwarded to the registrar by the instructor as soon as the latter receives the class cards.

Graduate Work *in Absentia*

Graduates may be enrolled, on an hourly basis, for a limited amount of research or problem work *in absentia* on the recommendation of the head of the department and with the approval of the Dean of the Graduate School.

Graduate Assistants

To facilitate research work, laboratory teaching and the acquisition of advanced degrees, the College has established graduate assistantships in several departments. Part-time positions with the United States Department of Agriculture, and industrial fellowships are sometimes available. The assistantships, which may be graduate assistantships, or graduate research assistantships, are part-time appointments which demand approximately one-half of the time of the student for laboratory or research assistance in the field of his major work during the regular collegiate year. The remainder of his time is given to advanced study. No graduate assistant or graduate research assistant may receive more than twelve hours of credit a semester nor satisfy the residence requirement for the master's degree in less than two semesters and one eight-week summer school.

Graduate assistanships, paying a salary fixed each year usually are maintained as follows:

Subject	*Number*
Agronomy	1
Bacteriology	2
Botany	1
Chemistry	5
Child Welfare	2
Civil Engineering	2
Dairy Husbandry	1
Entomology	1
Geology	1
Horticulture	2
Institutional Management	2
Machine Design	1
Mechanical Engineering	1
Milling Industry	1
Poultry Husbandry	1
Physics	1
Zoölogy	2

Graduate research assistantships, as listed below, usually are maintained in the departments named. Holders of these positions assist in conducting the regular research work in the institution.

Subject	*Number*
Agricultural Engineering	1
Agronomy	1
Animal Husbandry	2
Applied Mechanics	1
Botany	1
Clothing and Textiles	1
Genetics	3
Horticulture	1
Parasitology	2
Shop Practice	1
Zoölogy	2

Industrial assistantships and fellowships:

Subject	*Number*
Agricultural Economics	1
Agronomy	5
Applied Mechanics	1
Chemical Engineering	2
Chemistry	1
Entomology	2
Milling Industry	1

Applications for all assistantships should be made annually by April 1 for the following academic year. Students desiring such appointments may obtain application blanks from the Dean of the Graduate School.

Graduate Loan

The Manhattan Branch of the American Association of University Women maintains a loan fund which is available to graduate women students enrolled in any department of Kansas State College that offers graduate work. Application for this loan shall be made to the chairman of the Graduate Loan Fund Committee of the Manhattan Branch of the American Association of University Women.

Seniors and Graduate Study

A senior who has completed so much of his work for the bachelor's degree that his program for the year is not full may, with the consent of his dean and of the Dean of the Graduate School, be assigned to one or more courses for graduate credit. In no case shall such combination of courses exceed seventeen hours.

Graduate Work in the Summer School

All schools of the College offer graduate work in the summer school. Only in certain departments, however, can a student complete requirements for the master's degree without spending one or two semesters in residence. For information about these cases, one should address the Dean of the Graduate School.

Full information concerning the courses offered is contained in the Summer School number of the Kansas State College *Bulletin,* which may be obtained upon application to the Director of Admissions.

GRADUATE CALENDAR

SUMMER SESSIONS, 1945

May 28 and 29, Monday and Tuesday.—Registration of students for eight-week and sixteen-week Summer Sessions begins at 7:45 a. m.
May 30, Wednesday, to July 24, Tuesday.—First eight-week Summer Session.
June 9, Saturday.—Preliminary reports on master's theses are due.
June 12, Tuesday.—Lecture on Thesis Preparation. 4:00 p. m. F102.
June 27, Wednesday.—Doctor's theses are due.
June 29, Friday.—Master's examinations may begin. Abstracts of theses due one week before examination.
July 4, Wednesday.—Independence Day, holiday.
July 14, Saturday.—Master's thesis approvals are due.
July 21, Saturday.—Final copies of master's theses are due.
July 21, Saturday.—Last day for master's examinations.
July 24, Tuesday.—Eight-week scholarship deficiency reports to students and deans are due not later than 6:00 p. m.
July 25, Wednesday, to September 15, Saturday.—Second eight-week Summer Session.
August 22, Wednesday.—Doctor's theses are due.
September 5, Wednesday.—Master's thesis approvals are due.
September 12, Wednesday.—Last day for master's examinations.
September 12, Wednesday.—Master's theses are due.

FIRST SEMESTER, 1945-1946

September 25 and 26, Tuesday and Wednesday.—Registration and assignment of graduate students.
September 27, Thursday.—Opening convocation at 11:00 a. m.
November 17, Saturday.—Mid-semester scholarship deficiency reports to students and deans are due.
November 22, Thursday.—Thanksgiving Day, holiday.
December 1, Saturday.—Programs of study are due from candidates for the master's degree in 1946.
December 22, 1945, Saturday, at 12 m., to January 2, 1946, Wednesday, at 6 p. m.—Christmas vacation.
December 26, Wednesday.—Doctor's theses are due.
January 9, Wednesday.—Master's thesis approvals are due.
January 19, Saturday.—Master's theses are due.
January 26, Saturday.—First semester closes at 12 noon.

SECOND SEMESTER, 1945-1946

January 28 and 29, Monday and Tuesday.—Registration and assignment of graduate students.
February 12, Tuesday.—Lecture on Thesis Preparation. 4:00 p. m. F102.
February 23, Saturday.—Scholarship deficiency reports to students and deans are due.
March 8, Friday.—Preliminary reports on master's theses are due.
March 23, Saturday.—Mid-semester scholarship deficiency reports to students and deans are due.
April 9, Tuesday.—Master's examinations may begin. Abstracts of theses due one week before examination.
April 20, Saturday.—Doctor's theses are due.
April 22, Monday.—Easter Monday, holiday
May 1, Wednesday.—Master's thesis approvals are due.
May 11, Saturday.—Final copies of master's theses are due.
May 14, Tuesday.—Last day for master's examinations.
May 18, Saturday.—Second semester ends at 12 noon.
May 19, Sunday.—Eighty-third annual Commencement at 8:00 p. m.

SUMMER SCHOOL, 1946

May 27 and 28, Monday and Tuesday.—Registration of students for eight-week and sixteen-week Summer Sessions begins at 7:45 a. m.
May 29, Wednesday, to July 23, Tuesday.—First eight-week Summer Session.
June 8, Saturday.—Preliminary reports on master's theses are due.
June 11, Tuesday.—Lecture on Thesis Preparation. 4:00 p. m. F102.
June 22, Saturday.—Scholarship deficiency reports to students and deans are due.
June 26, Wednesday.—Doctor's theses are due.
June 28, Friday.—Master's examinations may begin. Abstracts of theses due one week before examination.
July 4, Thursday.—Independence Day, holiday.
July 10, Wednesday.—Master's thesis approvals are due.
July 20, Saturday.—Final copies of master's theses are due.
July 22, Monday.—Last day for master's examinations.
July 24, Wednesday, to September 14, Saturday.—Second eight-week Summer Session.

Undergraduate Degrees

To be graduated, a student must complete a prescribed curriculum. Under special conditions such substitutions are allowed as the interests of the student demand. The total requirement, including military science or physical training, or both, is about 120 to 142 semester hours, according to the curriculum taken. (A semester hour is one hour of recitation or lecture work, or three hours of laboratory a week, for one semester of sixteen weeks. When no ambiguity is involved, the term "hour" is used for "semester hour" in this catalogue.)

To be considered as a candidate for an undergraduate degree, a student must have completed in residence twenty of his last thirty undergraduate hours, with not fewer than thirty hours of resident undergraduate work at this institution. Resident work includes all regularly scheduled class or laboratory instruction given by the regular College faculty, exclusive of extension courses and courses completed by special examination. In special cases candidates will be considered who have completed three full years of work in this institution and have taken their last year of work in an institution approved by the faculty.

Seniors meeting the graduation requirement in hours but failing to meet it in points must take additional courses designated by the dean of the school in which their major work lies, until the requirement in points is met.

No student is considered a candidate for graduation in the spring who, at the beginning of the first semester, is deficient more than nine hours in addition to his regular assignment for the year. Candidates desiring to be graduated must make application to the registrar at least thirty days before the date of graduation. The candidate is responsible for complying with all requirements.

A candidate for graduation must be present in person, unless he has arranged in advance to receive his degree *in absentia*. The candidate must apply for this privilege to his dean. Degrees are conferred at the end of each semester and of the first eight-week summer session.

Degrees

The following degrees are conferred on completion of four-year curriculums:

- Bachelor of Science
- Bachelor of Science in Agriculture (Agriculture; Agricultural Administration; Agricultural Education; Dairy Manufacturing; Floriculture and Ornamental Horticulture; Soil Conservation)
- Bachelor of Science in Agricultural Engineering
- Bachelor of Science in Architecture
- Bachelor of Science in Architectural Engineering
- Bachelor of Science in Business Administration
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Home Economics (Home Economics; Dietetics and Institutional Management)
- Bachelor of Science in Industrial Arts
- Bachelor of Science in Industrial Chemistry
- Bachelor of Science in Industrial Journalism
- Bachelor of Science in Landscape Design
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Milling Industry
- Bachelor of Music
- Bachelor of Science in Music Education
- Bachelor of Science in Physical Education
- Doctor of Veterinary Medicine

The degree of Bachelor of Science in Home Economics and Nursing is conferred upon those who complete the five year curriculum in Home Economics and Nursing.

For a second bachelor's degree an additional year of not fewer than thirty semester hours is required. This work is in charge of the dean who administers the curriculum chosen.

The School of Agriculture

Leland Everett Call, *Dean*

The successful farmer must have scientific and economic knowledge and training. They are quite as essential as practical knowledge of agriculture in the development of an agricultural state such as Kansas. Soil is most effectively utilized by those who have knowledge of how soils have been formed, how fertility has been stored in them, and how the resources of the soil can be maintained.

The successful farmer also knows what kind of plants to grow and how to improve them. He understands the principles of selection, breeding, and feeding of livestock. He knows how to maintain orchards, gardens, and attractive surroundings. He has an appreciation for good and adequate farm buildings and a farm home equipped with modern conveniences. He is familiar with the best methods of marketing the products of the farm.

Kansas State College gives systematic training in agriculture which fits young men for the farm.

The College also prepares students for the scientific investigation of agricultural problems in state and national institutions, for agricultural extension work, for the teaching of agriculture, for service in industries closely related to agriculture, and for a variety of other public and private services of an agricultural nature.

The College owns 1,428 acres of land, which are used for experimental work and instruction, and maintains large and well-equipped laboratories for soil and crop work. There is ample greenhouse space for problems and research work in crops and soils.

The College herds and flocks contain high-class representatives of the important breeds of dairy and beef cattle, poultry, hogs, horses and sheep. The student becomes familiar with types and breeds by actual work with the stock.

Six of the four-year curriculums offered in this school lead to the degree of Bachelor of Science in Agriculture. The four-year curriculums in Milling Industry lead to the degree of Bachelor of Science in Milling Industry.

The four-year Curriculum in Landscape Design leads to the degree of Bachelor of Science in Landscape Design.

The Curriculum in Soil Conservation recently has been developed to meet a growing demand on the part of state and federal agencies for men trained in this field. It leads to the degree of Bachelor of Science in Agriculture.

The Curriculum in Agricultural Education meets specifically the requirements of men who expect to become teachers of vocational agriculture in Kansas high schools participating in federal Smith-Hughes funds.

The two-year Curriculum in Agriculture is intended for former service men and for men who have been detained on the farm or who have been employed in defense industries and who do not wish to take the time to earn a degree in agriculture. Probably the greatest opportunity for those who pursue the two-year curriculum will be on the farms, ranches, and smaller acreages of Kansas and other Midwestern agricultural states. (See page 50.)

Curriculum in Agriculture

Students choosing the Curriculum in Agriculture need not name the department in which they will major before the second semester of the sophomore year. They have their choice of numerous electives in soils, crops, agricultural economics, animal husbandry, dairy husbandry, horticulture, milling, and poultry husbandry.

All electives in any of the departments must be officially approved by the Dean of the School of Agriculture and the head of the department in which the student majors.

A student may major not only in any department in the School of Agriculture but also in the departments of Botany, Entomology, Zoölogy, Bacteriology, Chemistry, or Agricultural Engineering. Substitutions may be made to meet definite objectives. See "Substitutions to Meet Certain Objectives," following the outline of "Curriculum in Agriculture."

Any candidate for a degree in agriculture must have had at least six months of farm experience approved by the Dean of the School of Agriculture. Students in dairy manufactures, landscape design, or floriculture and ornamental horticulture may substitute practical experience in their respective industries for farm experience.

A formal statement outlining farm experience or substitutions therefor must be filed in the dean's office during the last semester of the senior year.

The student who completes the freshman and sophomore years will have had basic studies in soils, farm crops, livestock, dairying, poultry husbandry, horticulture, and agricultural economics, giving him a general knowledge of the whole range of agriculture. More than one-third of his time will have been devoted to strictly agricultural courses.

During his junior and senior years, the student continues his studies of fundamental science and begins to learn to apply science to agriculture.

Curriculum in Soil Conservation

The Curriculum in Soil Conservation is planned to meet the needs of students who expect to enter soil conservation work with federal, state, or local agencies and for those men who expect to do soil conservation work with public and private lending agencies. Interest and recent developments in soil conservation have led to a strong demand for men who are well trained in this special field. The curriculum is sufficiently broad to enable men who major in the Curriculum in Soil Conservation to receive training for work as county agents or farmers, and in other fields in general agriculture.

Curriculum in Agricultural Education

The Curriculum in Agricultural Eduaction is intended for those students who are interested in becoming teachers of vocational agriculture in Kansas high schools participating in federal Smith-Hughes and George Deen funds. The curriculum as outlined on another page meets the requirements for the degree Bachelor of Science in Agriculture and at the same time meets the requirements for the state certificate for teaching vocational agriculture. This curriculum ordinarily may be completed in four years. Students who pursue the curriculum are trained specifically for teaching vocational agriculture.

Curriculum in Agricultural Administration

The Curriculum in Agricultural Administration is planned to meet the needs of students preparing for industries closely related to farming, which require training in both agriculture and business principles. Among such industries and occupations are agricultural services, rural banking, development and sale of lands, processing and marketing of grains, and agricultural journalism.

There is ample opportunity to elect business subjects such as accounting, business organization, credit and finance, business law, and marketing.

Curriculum in Dairy Manufacturing

The Curriculum in Dairy Manufacturing provides special training in the manufacture of dairy products. It affords the student an opportunity to specialize in dairy manufacturing and to select, by means of properly chosen electives, one of three fields of specialization: (*a*) Dairy plant operator, (*b*) dairy plant manager, and (*c*) dairy products technician. Electives selected by the student must be approved in advance by the head of the Department of Dairy Husbandry and the Dean of the School of Agriculture.

Curriculum in Agricultural Administration with Professional Training in Journalism

Students wishing to enter journalism as a profession, with extensive work in agriculture, may combine work leading to a degree in agriculture by pursuing the Curriculum in Agricultural Administration. The student will take 30 hours of work in the Department of Industrial Journalism, leading to a certificate in journalism, and at the same time he will meet the professional requirements of the American Association of Schools and Departments of Journalism.

Electives of such students must be approved by the head of the Department of Agricultural Economics, the head of the Department of Industrial Journalism, and the Dean of the School of Agriculture. Such students will in general elect courses in journalism as outlined under the Curriculum in Industrial Journalism in the School of Arts and Sciences.

Students preparing for the field of agricultural journalism are expected to start such work in their sophomore year, and are encouraged to participate in the activities of professional journalistic organizations on the same basis as students pursuing the Curriculum in Industrial Journalism.

Those not expecting to make journalism a career may take minor work in journalism and at the same time major in any of the departments in the School of Agriculture.

Pretheological Courses

In coöperation with various theological seminaries, Kansas State College offers an opportunity for students who are preparing for the rural ministry to carry elective courses in the School of Agriculture and in other schools of the College which may be accepted as pretheological courses in a seminary.

Any person desiring to enter the rural ministry should acquaint himself with the requirements of the seminary of his choice. Special attention should be given to any language requirements.

Among the suggested electives that may be taken at Kansas State College would be courses in agricultural economics, economics, English literature, history and government, philosophy, psychology, rural sociology, sociology, and public speaking.

Persons desiring to prepare for the field of rural ministry will enter the Curriculum in Agricultural Administration. They should use the name of this curriculum in filling out information blanks in anticipation of enrollment in Kansas State College.

Curriculum in Landscape Design

The Curriculum in Landscape Design is planned for students who wish to become draftsmen for professional landscape firms and various other private and public agencies. Special emphasis is given to plant materials, planting design, and the rendering of landscape plans. Those completing the curriculum are eligible to receive the degree Bachelor of Science in Landscape Design.

Curriculum in Floriculture and Ornamental Horticulture

The Curriculum in Floriculture and Ornamental Horticulture gives training to those who wish to enter one of the several fields of floriculture. There is opportunity to become trained for the improvement of greenhouse and other floricultural plants and for the growing and selling of flowers. Emphasis is placed on the utilization of flowers in floral arrangements.

Those taking Ornamental Horticulture receive training in landscape design with particular reference to the production and use of landscape materials.

Curriculums in Milling Industry

The College offers three curriculums in the field of milling: (1) Curriculum in Milling Administration, (2) Curriculum in Milling Chemistry, (3) Curriculum in Milling Technology.

Students choosing the field of milling chemistry must so indicate at the time of assignment for the second semester of their freshman year in order to be assigned to proper chemistry courses.

Students who bring credits to this College from some other college or university and who choose one of the curriculums in milling, should indicate in which of the three curriculums in milling they expect to major.

Any candidate for a degree in milling industry must have had at least three months' experience in a wheat elevator, flour mill, bakery, or cereal chemistry laboratory, or the equivalent, before obtaining senior classification.

Milling Enrollment Limited

By authority of the State Board of Regents the number of students enrolled in milling industry is limited to 65. Students having their residence in Kansas have first preference. Out-of-state students who have had practical milling experience are given second preference. Selections from either group are further based on scholarship and other evidence of fitness.

Persons wishing to be selected for one of the curriculums in milling industry must apply several weeks before the beginning of the academic year. Applications should be made before August 15. Application blanks may be obtained from the Dean of the School of Agriculture.

State Teacher's Certificate

By selecting the proper electives in the Department of Education and Psychology, the four-year curriculum in Agriculture may lead to the degree of Bachelor of Science in Agriculture and also qualify the graduate for the three-year Kansas state teacher's certificate, valid in any high school or other public school in the state, and renewable for life. To meet the professional requirements for the three-year Kansas state teacher's certificate and fulfill the requirements of the Curriculum in Agriculture would require time in excess of the usual four years.

State Certificate for Teachers of Vocational Agriculture

The Curriculum in Agricultural Education is designed to meet the needs of persons desiring to teach vocational agriculture in federally aided secondary schools. This curriculum leads to the degree Bachelor of Science in Agriculture and meets the requirements for teaching vocational agriculture in Kansas high schools participating in federal Smith-Hughes and George Deen funds.

A total of 18 semester hours in the Department of Education and Psychology is required as follows:

Educ. 109	Educational Psychology	3
Educ. 241	Vocational Education	3
Educ. 255	Techniques in Agricultural Education	3
Educ. 256	Teaching Part-time and Adult Classes in Agriculture	3
Educ. 136	Methods of Teaching Agriculture	3
Educ. 161	Teaching Participation in Agriculture	3

A total of 17 semester hours in the School of Engineering and Archictecture is included in order to provide the mechanical training necessary for the handling of farm shop problems. The mechanical courses together with semester hours follow:

Shop	157 Farm Blacksmithing I	1
Shop	166 Welding	1
Agr. Engg.	103 Farm Mechanics	2
Agr. Engg.	106 Farm Power	3
Agr. Engg.	104 Farm Machinery Repair	2
Agr. Engg.	207 Farm Building Construction	3
Agr Engg.	208 Agricultural Engineering Applications	2
Agr. Engg.	206 Farm Mechanics Methods	3

Upon the completion of the Curriculum in Agricultural Education a person would qualify for the three-year Kansas state teacher's certificate, valid in any high school or other public school in the state. This certificate is valid for three years and may be renewed for life.

Agriculture in the Summer School

All departments in the College usually offer courses in the Summer School. Some are basic college courses, but graduate work particularly suited to high-school teachers of vocational agriculture is emphasized. The Summer School number of the Kansas State College *Bulletin* may be obtained upon application to the Director of Admissions.

Home Study in Agriculture

The Department of Home Study of the Division of College Extension offers a number of college courses in agriculture which can be taken by correspondence. Such courses carry the same credit as resident college courses having the same description. These courses will be found especially advantageous to college students who desire to make up deficiencies or to gain certain credits during the summer vacation season. All courses given by correspondence are listed in the latter part of this catalogue under the title "Home Study" in the Division of College Extension.

Two-year Curriculum in Agriculture

Recognizing the desirability for many young men to obtain some college training and then return to the farm or find better employment wherever their additional training and education may lead them, the College has provided a two-year Curriculum in Agriculture. It is intended primarily for former service men and others who have attained an advanced age or who for other reasons do not care to take the time to go through college for a degree.

Many young men entering this College with the intention of pursuing a two-year course in agriculture will be planning to return to the farm or ranch. Others by reason of their additional education and training will be seeking employment on farms and ranches and in businesses and establishments related to the business of farming.

ADMISSION AND GRADUATION

Only students who are graduates of high school may enter upon the two-year Curriculum in Agriculture.

All courses are of college level. Many of the courses are offered without the usual prerequisites.

Those who complete the course will be awarded a certificate in recognition of their agricultural accomplishment.

Any student who has done satisfactory work and who at the end of two years may decide to go through for a degree in agriculture may do so by making up all back work required in the regular four-year curriculum of his choice. On this point there will be no exceptions. An outline of required courses in the curriculum may be found following the regular four-year curriculums.

CHOICE OF ELECTIVES

The two-year Curriculum in Agriculture provides for 24 hours of elective courses. It is required that at least six hours out of the 24 hours of elective courses shall be chosen from among cultural or liberalizing courses offered by any of the departments of the College.

The remaining 18 hours may be selected for those fields where the student may have a special interest, such as: General farming, ranching, farm management, seeds, seed improvement, range management, stock farming, stockyards, packing or commission company, commercial feed company, dairy, dairy farm operation, herds, dairy plant, milk testing, herd testing, milk control, poultry, commercial poultry farming, hatchery, or state institution, fruit or vegetable growing. Electives may also be selected for the fields of farm mechanics, machinery repair, and gas and electric welding.

This is not to hint that a man who has completed the two-year short course in agriculture is ready to take a position carrying the responsibility and requiring the training of a graduate in agriculture. A person completing the two-year curiculum and thereafter accepting a position as an employee may encounter limitations upon advancement as compared with a man having a degree.

However, young men who complete the short course in agriculture will be well fitted to become farmers, stockmen, dairymen, fruit and vegetable producers, poultrymen, hatcherymen, and small acreage operators; and they should be able to find employment at a level above their probable level of employment if they choose to face the future without further education or training.

Curriculum in Agriculture

FRESHMAN

First Semester					Second Semester				
Course			*Sem. Hrs.*		*Course*			*Sem. Hrs.*	
Engl.	111	Writ. Comm. I	3		Engl.	112	Writ. Comm. II	3	
Geol.	103	Gen. Geology	3		Speech	111	Oral Comm	2	
Chem.	101	Chemistry I	5		Bot.	102	Gen. Botany	5	
An. Husb.	126	El. of An. Husb	2	*and*	Chem.	103	Chem. II Rec	3	
An. Husb.	127	Lvstk. Judg	1	*or*	An. Husb.	126	El. of An. Husb	2	*and*
Dairy Husb.	101	El. of Dairying	3		An. Husb.	127	Lvstk. Judg	1	*or*
Gen. Agr.	102	Freshman Lects	1		Dairy Husb.	101	El. of Dairying	3	
Mil. Sc.	101	Infantry I	1		Mil. Sc.	102	Infantry II	1	
Phys. Ed.	103	Phys. Education M	R		Phys. Ed.	103	Phys. Education M	R	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr.	103	Agr. Seminar*	R	
Total			16		Total			16	

SOPHOMORE

First Semester					Second Semester†				
Math.	103	Math. in Human Affairs	3		Econ.	101	Economics I	3	
Hort.	104	El. of Hort. Rec	2		An. Husb.	152	Prin. of Feeding	3	
Hort.	105	El. of Hort. Lab	1		Agron.	130	Soils	4	*or*
Chem.	125	Org. Chemistry (Agr.)	3		Agron.	110	Farm Crops	3	*and*
Agron.	130	Soils	4	*or*	Agron.	111	Farm Crops Lab	1	
Agron.	110	Farm Crops	3	*and*	Zoöl.	105	Gen. Zoölogy	5	
Agron.	111	Farm Crops Lab	1		Mil. Sc.	104	Infantry IV	1	
Poul. Husb.	101	Farm Poul. Prod	2		Phys. Ed.	103	Phys. Education M	R	
Mil. Sc.	103	Infantry III	1		Gen. Agr.	103	Agr. Seminar*	R	
Phys. Ed.	103	Phys. Education M	R						
Gen. Agr.	103	Agr. Seminar*	R						
Total			16		Total			16	

JUNIOR

First Semester					Second Semester				
An. Husb.	221	Genetics	3	*or*	Ent.	203	Gen. Econ. Entomol	3	
Bact.	105	Agr. Microbiology§	3		An. Husb.	221	Genetics	3	*or*
Physiol.	131	Anat. and Physiology‡	3	*or*	Bact.	105	Agr. Microbiology§	3	
Bot.	208	Plant Physiology I	3		Ind. Jour.	160	Agr. Journalism	3	
Agr. Econ.	106	Farm Organization	3		Gen. Agr.	103	Agr. Seminar*	R	
Gen. Agr.	103	Agr. Seminar*	R				Elective	7	
		Elective	7						
Total			16		Total			16	

SENIOR

First Semester					Second Semester				
Comp.	131	Man and the Cul. World I	4		Comp.	132	Man and the Cul. World II	4	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr.	105	Agr. Relationships	R	
		Elective	12		Gen. Agr.	103	Agr. Seminar*	R	
							Elective	12	
Total			16		Total			16	

Number of hours required for graduation, 128.

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* Four meetings each semester.

† Sometime during the second semester of the sophomore year each student is required to file a written statement in the office of the Dean of the School of Agriculture, designating the department of the school in which he will major.

‡ Students who do not expect to major in animal husbandry, dairy husbandry, or poultry husbandry may take Plant Physiology I (Bot. 208) instead of Anatomy and Physiology (Physiol. 131).

§ Students expecting to take additional work in bacteriology, either for advanced work in soils or dairying, will take General Microbiology instead of Agricultural Microbiology.

Electives

The electives in the Curriculum in Agriculture are grouped as follows:

	Semester Hours
Major Electives — These electives may be taken in any one of the departments of the School of Agriculture. In certain cases also a science department outside of the school may be selected for a major department; *e. g.*, Chemistry, Entomology, Bacteriology.	12
Minor Agricultural Electives — These electives may be taken from one or more departments but must directly strengthen the student's preparation in agriculture.	9
Minor Nonagricultural Electives — These electives must be chosen from one or more of the following: Psychology, Sociology, History, Contemporary Governments, and Political Science.	6
General Electives — These electives should be chosen to meet individual needs and to round out the preparation provided by the rest of the student's curriculum. All students not offering one unit of high school physics for entrance must include three hours of physics in their electives.	11

All electives must be officially approved before assignment, by both the Dean of the School of Agriculture and the head of the department in which the student majors.

SUBSTITUTION TO MEET CERTAIN OBJECTIVES

Students desiring to prepare themselves for scientific or special work in the field of agriculture may, with the approval of the Dean of the School of Agriculture and the head of the department in which they expect to major, substitute courses in the departments of Mathematics, Physics, Chemistry, Bacteriology, Entomology, Zoölogy, Botany and Plant Pathology, Education, Agricultural Engineering, Modern Languages, and other approved departments, for twenty-five hours in the Curriculum in Agriculture; provided, that no student may receive a degree in agriculture who does not have at least twenty-five hours in technical agriculture in not fewer than three departments.

Curriculum in Agricultural Administration

FRESHMAN

First Semester					Second Semester				
		Course	*Sem. Hrs.*				*Course*	*Sem. Hrs.*	
Engl.	111	Writ. Comm. I	3		Engl.	112	Writ. Comm. II	2	
An. Husb.	126	El. of An. Husb	2	*and*	Speech	111	Oral Comm	2	
An. Husb.	127	Lvstk. Judg	1	*or*	Dairy Husb.	101	El. of Dairying	3	*or*
Dairy Husb.	101	El. of Dairying	3		An. Husb.	126	El. of An. Husb	2	*and*
Comp.	111	Biol. in Rel. Man I	4		An. Husb.	127	Lvstk. Judg	1	
Comp.	101	Man's Phys. World I	4		Comp.	112	Biol. in Rel. to Man II	4	
Gen. Agr.	102	Freshman Lects	1		Comp.	102	Man's Phys. World II	4	
Mil. Sc.	101	Infantry I	1		Mil. Sc.	102	Infantry II	1	
Phys. Ed.	103	Phys. Education M	R		Phys. Ed.	103	Phys. Education M	R	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr.	103	Agr. Seminar*	R	
Total			16		Total			16	

SOPHOMORE

First Semester					Second Semester				
Econ.	101	Economics I	3		Econ.	104	Economics II	3	
Math.	103	Math. in Human Affairs	3		An. Husb.	152	Prin. of Feeding	3	
Agron.	130	Soils	4	*or*	Agron.	110	Farm Crops	3	*and*
Agron.	110	Farm Crops	3	*and*	Agron.	111	Farm Crops Lab	1	*or*
Agron.	111	Farm Crops Lab	1		Agron.	130	Soils	4	
Econ.	156	Rural Sociology	3		Hort.	104	El. of Hort	2	
Poul. Husb.	101	Farm Poul. Prod	2		Hort.	105	El. of Hort. Lab	1	
Mil. Sc.	103	Infantry III	1		Mil. Sc.	104	Infantry IV	1	
Phys. Ed.	103	Phys. Education M	R		Phys. Ed.	103	Phys. Education M	R	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr.	103	Agr. Seminar*	R	
							Elective	2	
Total			16		Total			16	

JUNIOR

First Semester					Second Semester				
Agr. Econ.	112	Farm Accounting	3		Agr. Econ.	106	Farm Organization	3	
Agr. Econ.	218	Land Economics	3		Agr. Econ.	202	Mktg. Farm Prod	3	
Comp.	131	Man and Cul. World I	4		Comp.	132	Man and Cul. World II	4	
Gen. Agr.	103	Agr. Seminar*	R		Ind. Jour.	160	Agr. Journalism	3	
		Elective	6		Gen. Agr.	103	Agr. Seminar*	R	
							Elective	3	
Total			16		Total			16	

SENIOR

First Semester					Second Semester				
Gen. Agr.	103	Agr. Seminar*	R		Agr. Econ.	215	Agr. Econ. Summ	2	
		Elective	16		Agr. Econ.	231	Agr. Econ. Seminar	1	
					Gen. Agr.	105	Agr. Relationships	R	
					Gen. Agr.	103	Agr. Seminar*	R	
							Elective	13	
Total			16		Total			16	

Number of hours required for graduation, 128.

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* Four meetings each semester.

Electives

The electives in the Curriculum in Agricultural Administration are grouped as follows:

	Semester Hours
Major Electives — These electives are to be chosen from the courses in the Department of Agricultural Economics.	9
Minor Agricultural Electives — These electives must be chosen from departments in the School of Agriculture and will directly strengthen the student's preparation in agriculture.	15
Minor Nonagricultural Electives — These courses must be chosen from approved courses in History, Political Science, Psychology, Mathematics, and Modern Languages.	6
General Electives — These electives should be chosen to meet individual needs and to round out the preparation provided by the rest of the student's curriculum.	10

All electives must be officially approved before assignment, by both the Dean of the School of Agriculture and the head of the Department of Economics and Sociology.

Curriculum in Agricultural Education

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Bot.	102	Botany	5	Chem.	110	Gen. Chemistry	5
Geol.	103	Gen. Geology	3	Dairy Husb.	101	Elem. of Dairying	3
An. Husb.	126	Elem. of An. Husb	2	Hort.	104	Elem. of Horticulture Rec.	2
An. Husb.	127	Livestock Judging	1	Hort.	105	Elem. of Horticulture Lab.	1
Gen. Agr.	102	Freshman Lects	1	Shop	157	Farm Blacks. I	1
Mil. Sc.	101	Infantry I	1	Shop	166	Welding	1
Phys. Ed.	103	Phys. Education	R	Mil. Sc.	102	Infantry II	1
Gen. Agr.	103	Agr. Seminar*	R	Phys. Ed.	103	Phys. Education	R
				Gen. Agr.	103	Agr. Seminar*	R
Total			16	Total			16

SOPHOMORE

First Semester				Second Semester			
Econ.	101	Economics I	3	Agron.	110	Farm Crops Rec	3
Speech	111	Oral Communications	2	Agron.	111	Farm Crops Lab	1
Speech	126	Parl. Procedure	1	An. Husb.	152	Prin. of Feeding	3
Educ.	109	Educ. Psychology	3	Agr. Econ.	112	Farm Accounting	3
Agron.	130	Soils	4	Educ.	241	Voc. Education	3
Agr. Engg.	103	Farm Mechanics	2	Agr. Engg.	106	Farm Power	3
Mil. Sc.	103	Infantry III	1	Mil. Sc.	104	Infantry IV	1
Phys. Ed.	103	Phys. Education	R	Phys. Ed.	103	Phys. Education	R
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
Total			16	Total			17

JUNIOR

First Semester				Second Semester			
Agron.	244	Soil Conservation I	3	Agr. Econ.	202	Mktg. Farm Prods	3
An. Husb.	171	Livestock Prod	3	An. Husb.	168	Meats	3
An. Husb.	140	Adv. Livestock Judg. I	2	Ent.	203	Gen. Econ. Entomology	3
Poul. Husb.	101	Farm Poul. Prod	2	Ind. Jour.	160	Agr. Journalism	3
Bot.	205	Plant Path. I	3	Educ.	256	Tchg. Part-time and Adult Classes in Agr	3
Educ.	255	Techniques in Agr. Educ	3	Agr. Engg.	104	Farm Machinery Repair	2
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
Total			16	Total			17

SENIOR

First Semester				Second Semester			
Agr. Econ.	106	Farm Organization	3	Agron.	108	Grain Gradg. and Judg.	2
Gen. Agr.	107	Farm Practices I	3	Gen. Agr.	108	Farm Practices II	3
Educ.	136	Meth. of Tch. Agr.	3	Poul. Husb.	216	Poul. Management	3
Agr. Engg.	207	Farm Bldgs. Constr.	3	Educ.	161	Tchg. Partic. in Agr	3
Agr. Engg.	208	Agr. Engg. Applications	2	Agr. Engg.	206	Farm Mechanics Meth.	3
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	105	Agr. Relationships	R
		Elective†	3	Gen. Agr.	103	Agr. Seminar*	R
						Elective	3
Total			17	Total			17

Number of hours required for graduation, 132.

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* Four meetings each semester.

† Students not offering one unit of high school physics for entrance must include three hours of physics in their electives.

Curriculum in Dairy Manufacturing

FRESHMAN

First Semester				Second Semester			
Course			*Sem. Hrs.*	*Course*			*Sem. Hrs.*
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Comp.	111	Biol. in Rel. Man. I	4	Speech	111	Oral Comm	2
Chem.	101	Chemistry I	5	Comp.	112	Biol. in Rel. Man II	4
Dairy Husb.	101	El. of Dairying	3	Chem.	103	Chemistry II Rec	3
Gen. Agr.	102	Freshman Lects	1	Chem.	104	Chemistry II Lab	2 *or*
Mil. Sc.	101	Infantry I	1	Dairy Husb.	105	Dairy Cattle Judg	2
Phys. Ed.	103	Phys. Education M	R	An. Husb.	126	El. of An. Husb	2
Gen. Agr.	103	Agr. Seminar*	R	An. Husb.	127	Lvstk. Judg	1
				Mil. Sc.	102	Infantry II	1
				Phys. Ed.	103	Phys. Education M	R
				Gen. Agr.	103	Agr. Seminar*	R
Total			17	Total			17

SOPHOMORE

First Semester				Second Semester			
Dairy Husb.	106	Dairy Inspect	2	Agron.	110	Farm Crops Lec	3
Math.	103	Math. in Human Affairs	3	Agron.	111	Farm Crops Lab	1
Poul. Husb.	101	Farm Poul. Prod	2	Dairy Husb.	108	Milk Production	3
Bact.	101	Gen. Microbiology	3	Bact.	212	Dairy Bacteriology	3
Chem.	125	Organic Chem. (Agr.)	3	Econ.	101	Economics I	3
Econ.	136	Prin. of Accounting	3	An. Husb.	152	Prin. of Feeding	3
Mil. Sc.	103	Infantry III	1	Mil. Sc.	104	Infantry IV	1
Phys. Ed.	103	Phys. Education M	R	Phys. Ed.	103	Phys. Education M	R
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
Total			17	Total			17

JUNIOR

First Semester				Second Semester			
An. Husb.	221	Genetics	3 *or*	Dairy Husb.	130	Ice Cream Mkg	3 *or*
Dairy Husb.	128	Cond. and Pwd. Milk	3	Dairy Husb.	135	Cheese Making	3
Dairy Husb.	110	Butter Making	3	Dairy Husb.	116	Market Milk	3
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
		Elective†	6			Elective	6
Total			16	Total			16

SENIOR

First Semester				Second Semester			
An. Husb.	221	Genetics	3 *or*	Dairy Husb.	130	Ice Cream Mkg	3 *or*
Dairy Husb.	128	Cond. and Pwd. Milk	3	Dairy Husb.	135	Cheese Making	3
Dairy Husb.	226	Dairy Plant Mgt	2	Dairy Husb.	202	Dairy Seminar	1
Comp.	131	Man and Cul. World I	4	Comp.	132	Man and Cul. World II	4
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	105	Agr. Relationships	R
		Elective	7	Gen. Agr.	103	Agr. Seminar*	R
						Elective	8
Total			16	Total			16

Number of hours required for graduation, 132.

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* Four meetings each semester.

† All students not offering one unit of high school physics for entrance must include three hours of physics in their electives.

Curriculum in Floriculture and Ornamental Horticulture

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Bot.	102	Gen. Botany	5	Speech	111	Oral Comm.	2
Hort.	114	Farm Forestry	3	Chem.	101	Chemistry I	5
Geol.	103	Gen. Geology	3	Hort.	104	El. of Hort. Rec	2
Gen. Agr.	102	Freshman Lects	1	Hort.	105	El. of Hort. Lab	1
Mil. Sc.	101	Infantry I (men)	1	Hort.	127	G. H. Cons. and Mgt	3
Phys. Ed.	103	Phys. Education M	R or	Mil. Sc.	102	Infantry II (men)	1
Phys. Ed.	151	Phys. Education W	R	Phys. Ed.	103	Phys. Education M	R or
Gen. Agr.	103	Agr. Seminar*	R	Phys. Ed.	151	Phys. Education W	R
				Gen. Agr.	103	Agr. Seminar*	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Chem.	103	Chem. II Rec	3	Agron.	130	Soils	4
Hort.	125	Land. Gardening	3	Chem.	125	Org. Chemistry (Agr.)	3
Hort.	101	Plant Propagation	3	An. Husb.	221	Genetics	3
Math.	103	Math. in Human Affairs	3	Econ.	101	Economics I	3
Bot.	225	Tax. Bot. Flrg. Plts	3	Bot.	228	Plant Ecology	3
Mil. Sc.	103	Infantry III (men)	1	Mil. Sc.	104	Infantry IV (men)	1
Phys. Ed.	103	Phys. Education M	R or	Phys. Ed.	103	Phys. Education M	R or
Phys. Ed.	151	Phys. Education W	R	Phys. Ed.	151	Phys. Education W	R
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
Total			15 or 16	Total			16 or 17

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cul. World I	4	Comp.	132	Man and Cul. World II	4
Hort.	102	Plant Materials I	3	Hort.	103	Plant Materials II	3
Bot.	208	Plant Physiology I	3	Econ.	136	Prin. of Actg.	3
Hort.	140	Comm. Flori. I	3	Econ.	126	Bus. Mgt.	2
Agron.	208	Plant Genetics	3	Gen. Agr.	103	Agr. Seminar*	R
Gen. Agr.	103	Agr. Seminar*	R			Elective†	4
Total			16	Total			16

SENIOR

First Semester				Second Semester			
Bot.	205	Plant Pathology I	3	Ind. Jour.	160	Agr. Jour.	3
Ent.	203	Gen. Econ. Ent.	3	Hort.	207	Spraying	3
Hort.	120	Forest Nurs. Pract.	3	Hort.	208	Lit. of Hort.	2
Hort.	135	Floral Arrgt. I	2	Hort.	235	Hort. Seminar	1
Hort.	235	Hort. Seminar	1	Gen. Agr.	105	Agr. Relationships	R
Gen. Agr.	103	Agr. Seminar*	R	Gen. Agr.	103	Agr. Seminar*	R
		Elective	4			Elective	7
Total			16	Total			16

Suggested Electives

Floriculture				*Ornamental Horticulture*			
Hort.	136	Floral Arrgt. II	2	Mch. Des.	101	Engg. Drawing	2
Hort.	141	Comm. Flori. II	3	Hort.	227	Lands. Constr.	3
Hort.	133	Veg. Gardening	3	Hort.	243	Theo. Lands. Des.	2
Hort.	214	Hort. Cash Crops	2	Hort.	228	Planting Design	2
				Hort.	238	Lands. Design I	3
				Arch.	112	Freehand Drawing I	2

Number of hours required for graduation: Women, 125; men, 129.

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* Four meetings each semester.

† All students not offering one unit of high school physics for entrance must include three hours of physics in their electives.

Curriculum in Landscape Design

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Bot.	102	Gen. Botany	5	Hort.	104	El. of Hort. Rec	2
Comp.	101	Man's Phys. World I	4	Hort.	105	El. of Hort. Lab	1
Engl.	111	Writ. Comm. I	3	Comp.	102	Man's Phys. World II	4
Arch.	112	Freehand Draw. I	2	Engl.	112	Writ. Comm. II	2
Mch. Des.	101	Engg. Drawing	2	Arch.	113	Freehand Draw. II	2
Gen. Agr.	102	Freshman Lects	1	Mch. Des.	106	Desc. Geom	2
Mil. Sc.	101	Infantry I (men)	1	Math.	101	Plane Trigonometry	3
Phys. Ed.	103	Phys. Education M	R or	Mil. Sc.	102	Infantry II (men)	1
Phys. Ed.	151	Phys. Education W	R	Phys. Ed.	103	Phys. Education M	R or
Gen. Agr.	103	Agr. Seminar*	R	Phys. Ed.	151	Phys. Education W	R
				Gen. Agr.	103	Agr. Seminar*	R
Total			17 or 18	Total			16 or 17

SOPHOMORE

First Semester				Second Semester			
Hort.	125	Lands. Gardening	3	Geol.	110	Physiographic Geol	3
Arch.	101	El. of Arch. I	4	Arch.	102	El. of Arch. II	4
Arch.	154A	Hist. of Arch. I	2	Arch.	157A	Hist. of Arch. II	2
Agron.	130	Soils	4	Bot.	228	Plant Ecology	3
Bot.	225	Tax. Bot. Flrg. Plts	3	Econ.	101	Economics I	3
Mil. Sc.	103	Infantry III (men)	1	Speech	111	Oral Comm	2
Phys. Ed.	103	Phys. Education M	R or	Mil. Sc.	104	Infantry IV (men)	1
Phys. Ed.	151	Phys. Education W	R	Phys. Ed.	103	Phys. Education M	R or
Gen. Agr.	103	Agr. Seminar*	R	Phys. Ed.	151	Phys. Education W	R
				Gen. Agr.	103	Agr. Seminar*	R
Total			16 or 17	Total			17 or 18

JUNIOR

First Semester				Second Semester			
Hort.	243	Theo. Lands. Des	2 or	Hort.	228	Planting Design	2 or
Hort.	227	Lands. Constr	3	Hort.	223	Civic Art	3
Hort	102	Plant Materials I	3	Hort.	103	Plant Materials II	3
Civ. Engg.	102	Surveying I	2	Ent.	203	Gen Econ. Entomol	3
Arch.	116	Pencil Sketch	2	Arch.	118	Water Color I	2
Bot.	205	Plant Pathology I	3	Gen. Agr.	103	Agr Seminar*	R
Gen. Agr.	103	Agr. Seminar*	R			Elective	6
		Elective†	4				
Total			16 or 17	Total			16 or 17

SENIOR

First Semester				Second Semester			
Hort.	238	Lands. Design I	3	Hort.	246	Lands. Design II	3
Hort.	227	Lands. Constr	3 or	Hort.	223	Civic Art	3 or
Hort.	243	Theo. Lands. Des	2	Hort.	228	Planting Design	2
Comp.	131	Man and Cul. World I	4	Comp.	132	Man. and Cul. World II	4
Gen. Agr.	103	Agr. Seminar*	R	Ind. Jour.	160	Agr. Journalism	3
		Elective	6	Gen. Agr.	105	Agr. Relationships	R
				Gen. Agr.	103	Agr. Seminar*	R
						Elective	4
Total			15 or 16	Total			16 or 17

Number of hours required for graduation: Women, 131; men, 135.

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* Four meetings each semester.

† All students not offering one unit of high school physics for entrance must include three hours of physics in their electives. See Requirements for Admission.

Curriculum in Milling Administration

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	101	Chemistry I	5	Chem.	103	Chemistry II Rec	3
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Gen. Agr.	102	Freshman Lects	1	Speech	111	Oral Communications	2
Mch. Des.	101	Engg. Drawing	2	Ent.	117	Milling Entomology	2
Math.	104	College Algebra	3	Hist.	125	Contemp. World Hist.	3
Mill. Ind.	102	Surv. of Mill. Ind	1	Math.	101	Plane Trigonometry	2
Mil. Sc.	113	Artillery I	1	Mill Ind.	101	El. of Milling	2
Phys. Ed.	103	Phys. Education M	R	Mil. Sc.	114	Artillery II	1
Mill. Ind.	118	Milling Ind. Seminar*	R	Phys. Ed.	103	Phys. Education M	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
Total			16	Total			17

SOPHOMORE

First Semester				Second Semester			
Bot.	102	Gen. Botany	5	Chem.	125	Organic Chem. (Agr.)	3
Econ.	133	Accounting I	3	Econ.	134	Accounting II	3
Mill. Ind.	103	Flow Sheets	2	Econ.	101	Economics I	3
Phys.	102	Gen. Physics I	4	Mill. Ind.	109	Mill. Practice I	3
Speech	226	Public Discussion	2	Phys.	103	Gen. Physics II	4
Mil. Sc.	115	Artillery III	1	Mil. Sc.	116	Artillery IV	1
Phys. Ed.	103	Phys. Education M	R	Phys. Ed.	103	Phys. Education M	R
Mill. Ind.	118	Milling Ind. Seminar*	R	Mill. Ind.	118	Milling Ind. Seminar*	R
Total			17	Total			17

JUNIOR

First Semester				Second Semester			
Agron.	115	Mkt. Grading Cereals	3	Econ.	116	Money and Banking	3
Agr. Econ.	202	Mktg. Farm Prods	3	Econ.	104	Economics II	3
Agr. Econ.	156	Rural Sociology	3	Hist.	164	Business Law II	3
Educ.	184	Gen. Psychology	3	Mill. Ind.	212	Qual. of Wheat and Flour	3
Hist.	163	Business Law I	3	Mill. Ind.	118	Milling Ind. Seminar*	R
Mill. Ind.	118	Milling Ind. Seminar*	R			Elective	4
		Elective	2				
Total			17	Total			16

SENIOR

First Semester				Second Semester			
Agr. Econ.	203	Grain Marketing	3	Comp.	132	Man and Cul. World II	4
Comp.	131	Man and Cul. World I	4	Econ.	215	Bus. Org and Fin	3
Engl.	123	Writ. and Oral Sales	3	Econ.	234	Labor Economics	3
Mill. Ind.	118	Milling Ind. Seminar*	R	Engl.	122	Coml. Correspondence	3
		Elective	6	Gen. Agr.	105	Agr. Relationships	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
						Elective	3
Total			16	Total			16

Number of hours required for graduation, 132.

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* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Milling Chemistry

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	101	Chemistry I	5	Chem.	103	Chemistry II Rec	3
Engl.	111	Writ. Comm. I	3	Chem.	104	Chemistry II Lab	2
Gen. Agr.	102	Freshman Lects	1	Engl.	112	Writ. Comm. II	2
Mch. Des.	101	Engg. Drawing	2	Speech	111	Oral Comm	2
Math.	104	College Algebra	3	Ent.	117	Mill. Entomology	2
Mill. Ind.	102	Survey of Mill. Ind	1	Math.	101	Plane Trigonometry	3
Mil. Sc.	113	Artillery I	1	Mill. Ind.	101	El. of Milling	2
Phys. Ed.	103	Phys. Education M	R	Mil. Sc.	114	Artillery II	1
Mill. Ind.	118	Milling Ind. Seminar*	R	Phys. Ed.	103	Phys. Education M	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
Total			16	Total			17

SOPHOMORE

First Semester				Second Semester			
Bot.	102	Gen. Botany	5	Chem.	215	Quan. Analysis	5
Chem.	122	Gen. Organic Chem	5	Math.	110	Plane Anal. Geom	4
Mill. Ind.	103	Flow Sheets	2	Mill. Ind.	109	Milling Practice I	3
Phys.	102	Gen. Physics I	4	Phys.	103	Gen. Physics II	4
Mil. Sc.	115	Artillery III	1	Mil. Sc.	116	Artilery IV	1
Phys. Ed.	103	Phys. Education M	R	Phys. Ed.	103	Phys. Education M	R
Mill. Ind.	118	Milling Ind. Seminar*	R	Mill. Ind.	118	Milling Ind. Seminar*	R
Total			17	Total			17

JUNIOR

First Semester				Second Semester			
Agron.	115	Mkt. Grading of Cereals	3	Chem.	240	Biochemistry	5
Econ.	101	Economics I	3	Mill. Ind.	212	Qual. of Wheat and Flour	3
Bact.	101	Gen. Microbiology	3	Mill. Ind.	207	Exptl. Baking	4
Math.	114	Calculus I	4	Mill. Ind.	118	Milling Ind. Seminar*	R
Mill. Ind.	205	Wht. and Flour Testing	3			Elective	5
Mill. Ind.	118	Milling Ind. Seminar*	R				
Total			16	Total			17

SENIOR

First Semester				Second Semester			
Chem.	252	Chem. of Proteins	3	Chem.	261	Phys. Chem. II Rec	3
Chem.	260	Physical Chem I	5	Chem.	262	Phys. Chem. II Lab	2
Comp.	131	Man and Cul. World I	4	Chem.	268	Colloid Chemistry	2
Mill. Ind.	118	Milling Ind. Seminar*	R	Comp.	132	Man and Cul. World II	4
		Elective	4	Mill. Ind.	210	Adv. Wht. and Flour Testing	2
				Gen Agr.	105	Agr. Relationships	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
						Elective	3
Total			16	Total			16

Number of hours required for graduation, 132.

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* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Milling Technology

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	101	Chemistry I	5	Chem.	103	Chemistry II Rec	3
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Gen. Agr.	102	Freshman Lects	1	Speech	111	Oral Comm	2
Mach. Des.	101	Engg. Drawing	2	Ent.	117	Mill. Entomology	2
Math.	104	College Algebra	3	Mach. Desc.	106	Desc. Geom	2
Mill. Ind.	102	Survey of Mill. Ind	1	Math.	101	Plane Trigonometry	3
Mil. Sc.	113	Artillery I	1	Mill. Ind.	101	El. of Milling	2
Phys. Ed.	103	Phys. Education M	R	Mil. Sc.	114	Artillery II	1
Mill. Ind.	118	Milling Ind. Seminar*	R	Phys. Ed.	103	Phys. Education M	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
Total			16	Total			17

SOPHOMORE

First Semester				Second Semester			
Bot.	102	Gen. Botany	5	Chem.	125	Organic Chemistry (Agr.)	3
Math.	110	Plane Anal. Geom	4	Mach. Des.	111	Mach. Drawing I	2
Mill. Ind.	103	Flow Sheets	2	Math.	114	Calculus I	4
Phys.	102	Gen. Physics I	4	Mill. Ind.	109	Mill. Practice I	3
Mil. Sc.	115	Artillery III	1	Phys.	103	Gen. Physics II	4
Phys. Ed.	103	Phys. Education M	R	Mil. Sc.	116	Artillery IV	1
Mill. Ind.	118	Milling Ind. Seminar*	R	Phys. Ed.	103	Phys. Education M	R
				Mill. Ind.	118	Milling Ind. Seminar*	R
Total			16	Total			17

JUNIOR

First Semester				Second Semester			
Agron.	115	Mkt. Grading of Cereals	3	Ap. Mech.	202	Applied Mech	4
Econ.	101	Economics I	3	Elec. Engg.	102	Elec. Engg. C Rec	2
Mach. Des.	121	Mechanism	3	Elec. Engg.	106	Elec. Engg. C Lab	1
Math.	115	Calculus II	4	Mach. Des.	111	Mach Drawing I	2
Mill. Ind.	111	Mill. Practice II	3	Mech. Engg.	125	Steam and Gas Engg. C	2
Shop	166	Welding	1	Mill. Ind.	212	Qual. of Wht. and Flr	3
Mill. Ind.	118	Milling Ind. Seminar*	R	Mill. Ind.	118	Milling Ind. Seminar*	R
						Elective	3
Total			17	Total			17

SENIOR

First Semester				Second Semester			
Ap. Mech.	212	Mech. of Mati. I Rec	4	Comp.	132	Man and Cul. World II	4
Comp.	121	Man and Cul. World I	4	Mech. Engg.	135	Air Conditioning A	3
Mill Ind.	201	Milling Tech. I	2	Mill. Ind.	203	Flour Mill. Const	3
Shop	168	Gas Welding	1	Mill. Ind.	202	Milling Tech. II	2
Mill. Ind.	118	Milling Ind. Seminar*	R	Gen. Agr.	105	Agr. Relationships	R
		Elective	5	Mill. Ind.	118	Milling Ind. Seminar*	R
						Elective	4
Total			16	Total			16

Number of hours required for graduation, 132.

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* One meeting each month in addition to Agricultural Seminar (Gen. Agr. 103).

Curriculum in Soil Conservation

FRESHMAN

First Semester					Second Semester				
		Course	*Sem. Hrs.*				*Course*	*Sem. Hrs.*	
Engl.	111	Writ. Comm. I	3		Engl.	112	Writ. Comm. II	2	
Geol.	103	Gen. Geology	3		Speech	111	Oral Communications	2	
Chem.	101	Chemistry I	5		Bot.	102	Gen. Botany	5	
An. Husb.	126	El. of An. Husb	2	*and*	Chem.	103	Chemistry II Rec	3	
An. Husb.	127	Lvstk. Judg	1	*or*	An. Husb.	126	El. of An. Husb	2	*and*
Dairy Husb.	101	El. of Dairying	3		An. Husb.	127	Lvstk. Judg	1	*or*
Gen. Agr.	102	Freshman Lects	1		Dairy Husb.	101	El. of Dairying	3	
Mil. Sc.	101	Infantry I	1		Mil. Sc.	102	Infantry II	1	
Phys. Ed.	103	Phys. Education M	R		Phys. Ed.	103	Phys. Education M	R	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr.	103	Agr. Seminar*	R	
Total			16		Total			16	

SOPHOMORE

First Semester					Second Semester				
Math.	103	Math. in Human Affairs	3		Econ.	101	Economics I	3	
Hort.	104	El. of Horticulture	2		An. Husb.	152	Prin. of Feeding	3	
Hort.	105	El. Horticulture Lab	1		Agron.	130	Soils	4	*or*
Chem.	125	Org. Chemistry (Agr.)	3		Agron.	110	Farm Crops	3	*and*
Agron.	130	Soils	4	*or*	Agron.	111	Farm Crops Lab	1	
Agron.	110	Farm Crops	3	*and*	Zoöl.	105	General Zoölogy	5	
Agron.	111	Farm Crops Lab	1		Mil. Sc.	104	Infantry IV	1	
Poul. Husb.	101	Farm Poul. Prod	2		Phys. Ed.	103	Phys. Education M	R	
Mil. Sc.	103	Infantry III	1		Gen. Agr.	103	Agr. Seminar*	R	
Phys. Ed.	103	Phys. Education M	R						
Gen. Ag.	103	Agr. Seminar*	R						
Total			16		Total			16	

JUNIOR

First Semester					Second Semester				
An. Husb.	221	Genetics	3	*or*	An. Husb.	221	Genetics	3	*or*
Bact.	105	Agr. Microbiology	3		Bact.	105	Agr. Microbiology	3	
Agr. Econ.	106	Farm Organization	3		Ent.	203	Gen. Econ. Entomol	3	
Agron.	203	Pasture Imp. I	3		Ind. Jour.	160	Agr. Journalism	3	
Mach. Des.	101	Engg. Drawing	2		Agron.	244	Soil Conservation I	3	
Bot.	208	Plant Physiology I	3		Gen. Agr.	103	Agr. Seminar*	R	
Gen. Agr.	103	Agr. Seminar*	R				Elective	4	
		Elective	2						
Total			16		Total			16	

SENIOR

First Semester					Second Semester				
Agron	231	Soil Conservation II	2		Agr. Engg.	240	Drainage, Erosion Con. and Irrig	3	
Hort.	114	Farm Forestry	3		Agron.	235	Devel. and Classif. of Soils	3	
Zoöl.	249	Wild Life Conservation	3		Comp.	132	Man and Cul. World II	4	
Comp.	131	Man and Cul. World I	4		Gen. Agr.	105	Agr. Relationships	R	
Gen. Agr.	103	Agr. Seminar*	R		Gen. Agr	103	Agr. Seminar*	R	
		Elective†	4				Elective	6	
Total			16		Total			16	

Suggested Electives

Agron.	217	Weed Control	2		Agr. Econ.	156	Rural Sociology	3	
Agron.	211	Crop Ecology	2		Agr. Econ.	212	Conservation of Natural Resources	2	
Agron.	248	Soil Fertility	3		Physics	151	Photography	2	
Physics	102	Gen. Physics I	4						
Physics	146	Intro. Meteorology	3						

Number of hours required for graduation, 128.

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* Four meetings each semester.

† All students not offering one unit of high school physics for entrance must include three hours of physics in their electives.

Electives must be approved by both the head of the Department of Agronomy and the Dean of the School of Agriculture.

Two-Year Curriculum in Agriculture

FIRST YEAR

First Semester					Second Semester			
Course			*Sem. Hrs.*		*Course*			*Sem. Hrs.*
Engl.	111	Writ. Comm. I	3		Engl.	112	Writ. Comm. II	2
Hort.	104	El. of Hort. Rec.*	2	*and*	Speech	111	Oral Comm	2
Hort.	105	El. of Hort. Lab.*	1		Agron.	130	Soils Rec	3
Agron.	110	Farm Crops*	3	*and*	Dairy Husb.	101	El. of Dairying*	3
Agron.	111	Farm Crops Lab.*	1		Poul. Husb.		Farm Poul. Prod.*	2
An. Husb.	126	El. of An. Husb.*	2	*and*	Mil. Sc.	102	Infantry II	1
An. Husb.	127	Lvstk. Judg.*	1		Phys. Ed.	103	Phys. Education M	R
Gen. Agr.	102	Freshman Lects	1		Gen. Agr.	103	Agr. Seminar†	R
Mil. Sc.	101	Infantry I	1				Elective	5
Phys. Ed.	103	Phys. Education M	R					
Gen. Agr.	103	Agr. Seminar†	R					
		Elective‡	3					
Total			18		Total			18

SECOND YEAR

First Semester				Second Semester			
Ent.	203	Gen. Econ. Entomology	3	An. Husb.	152	Prin. of Feeding	3
Bot.	205	Plant Pathology I	3	Agr. Ec.	106	Farm Organization	3
Econ.	101	Economics I	3	Agr. Engg.	108	Farm Machinery	3
Mil. Sc.	103	Infantry III	1	Mil. Sc.	104	Infantry IV	1
Phys. Ed.	103	Phys. Education M	R	Phys. Ed.	103	Phys. Education M	R
Gen. Agr.	103	Agr. Seminar†	R	Gen. Agr.	103	Agr. Seminar†	R
		Elective	8			Elective	8
Total			18	Total			18

* If the student has had satisfactory high school work in these courses or related courses and can demonstrate a satisfactory knowledge of the subject, he may substitute other courses with the approval of the head of the department and the Dean of the School of Agriculture.

† Four meetings each semester.

‡ See description of the two-year curriculum in agriculture on a preceding page for suggestions in the selection of electives.

Agricultural Economics

Section of

Economics and Sociology

Professor Grimes
Professor Farrell
Professor Howe
Professor Hill
Professor Hodges
Professor Montgomery
Assistant Professor Otto

Work in economics and sociology is offered in the schools of Agriculture and Arts and Sciences. The more general courses are listed in the arts and sciences section of the catalogue. Those couses listed here have a direct bearing on agriculture.

The investigational work in agricultural economics and rural sociology brings together the latest information concerning the business problems of agriculture and the problems of rural life. These data are used in the instructional work of the department. The student has an opportunity to learn of the factors and economic forces involved in farm management, marketing, taxation, land utilization, agricultural finance, rural life, and other closely related subjects.

COURSES IN AGRICULTURAL ECONOMICS

FOR UNDERGRADUATE CREDIT

106. Farm Organization. 3 semester hours. Each semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Econ. 101, Agron. 130, and An. Husb. 152. Hodges. Economic forces affecting the organization and operation of the farm business. Charge, $1.

112. Farm Accounting. 3 semester hours. Each semester.
Two hours of recitation and three of laboratory a week. Prerequiste: Econ. 101. Hodges. Systems of farm records and accounts. Analysis and utilization of cost of production data. Charge, $1.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Marketing of Farm Products. 3 semester hours. Each semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery. Marketing services and functions and price-making forces.

203. Grain Marketing. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery. Price influences and relationships, buying and selling problems, domestic and export trade; grain trade organization and regulation.

206A. Advanced Farm Organization. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Agr. Econ. 106. Hodges. Advanced studies of factors affecting the successful organization and operation of farms.

211. Agricultural Industries. 2 semester hours. Second semester.
Offered in 1946-'47 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 101; junior standing. Farrell. Study of geographic, economic, and social factors controlling the establishment and maintenance of the major agricultural industries.

212. Conservation of Natural Resources. 2 semester hours. Second semester.
Offered in 1945-'46 and alternate years thereafter. Two hours of recitation a week. Prerequisite: Econ. 101; junior standing. Farrell.

215. Agricultural Economics Summary. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: Senior standing. Staff.

Summarization and correlation of courses pursued in college; problems requiring application of principles and broad understanding of the field; contemporary economic developments.

218. Land Economics. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Howe. Relation of population to land supply; land tenure, ownership, and valuation.

Land Law. See Hist. 276.

225. Agricultural Finance. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Otto. Sources and use of credit for purchase of farm land and to finance farm operations.

226. Market Prices. 3 semester hours. Each semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery. Explanation of price analysis and forces determining prices.

227. Farmer Movements. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Hodges. Principles underlying successful organization of farmers.

231. Agricultural Economics Seminar. 1 semester hour. Second semester.
One hour of recitation a week. Prerequisite: Econ. 101. Staff. Current questions in agricultural economics.

235. Livestock Marketing. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Otto. Livestock marketing services, functions, and prices.

240. Principles of Coöperation. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery. Principles underlying successful coöperative activities.

251. Marketing of Dairy Products. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Montgomery. Factors affecting prices; dairy marketing organizations.

270. Agricultural Economic Problems. Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff.

271. Economic Analysis and Interpretation. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Econ. 101. Hodges.

FOR GRADUATE CREDIT

301. Research in Agricultural Economics. Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff. Individual research problems which may be used for a master's degree.

COURSES IN RURAL SOCIOLOGY

FOR UNDERGRADUATE CREDIT

156. Rural Sociology. 3 semester hours. First semester.
Three hours of recitation a week. Preferably preceded by a course in sociology. Hill.

FOR GRADUATE AND UNDERGRADUATE CREDIT

256. Advanced Rural Sociology. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Econ. 156. Hill. A continuation of Econ. 156.

FOR GRADUATE CREDIT

350. Research in Rural Sociology. Credit to be arranged. Each semester and summer.
Prerequisite: Econ. 156. Hill.

Agronomy

Professor THROCKMORTON
Professor LAUDE
Professor CLAPP
Professor MYERS
Associate Professor ZAHNLEY
Associate Professor REITZ
Associate Professor MULLEN
Associate Professor DAVIS
Associate Professor HIDE
Associate Professor ANDERSON
Seed Analyst NORRIS

The farm used by the Department of Agronomy comprises 320 acres of medium rolling upland soil, suited to experimental and demonstration work. The general fields and experimental plots, used for the breeding and testing of farm crops and for conducting experiments in soil fertility and methods of culture, afford the student excellent opportunities for study and investigation.

Laboratories for soil and crop work are maintained for the regular use of students. Material is provided for the study of the grain and forage crops best adapted to different purposes and most suitable for growing in the state. Greenhouse space is provided for problems and research work in crops and soils.

COURSES IN FARM CROPS

FOR UNDERGRADUATE CREDIT

110. Farm Crops. 3 semester hours. Each semester.
Three hours of recitation a week. Prerequisite: Bot. 102. Davis, Mullen. To be taken concurrently with Agronomy 111. Distribution, importance, characteristics and production of the common field crops.

111. Farm Crops Laboratory. 1 semester hour. Each semester.
Three hours of laboratory a week. Prerequisite: Bot. 102. Davis, Mullen. To be taken concurrently with Agron. 110. Study of species and types of the principal field crops. Deposit, $4.

108. Grain Grading and Judging. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Agron. 110, 111. Zahnley. Application of the Federal Standards for grading farm crops and judging of grains and other crop products. Charge, $3.

114. Advanced Grain Judging. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: Agron. 108. Zahnley, Davis. Commercial grading and judging of field crops and identification of the principal types and varieties. Charge, $3.

115. Market Grading of Cereals. 3 semester hours. First semester.
One hour of recitation, four hours of laboratory and two hours of unassembled laboratory a week. Prerequisite: Mill. Ind. 101. Offered in 1946-'47 and alternate years thereafter. Zahnley, Mullen. Market grades of cereals and factors that influence them. Charge, $3.50.

112. Seed Testing. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: Bot. 102. Norris. Offered in 1946-'47 and alternate years thereafter. Laboratory testing of seeds, including identification, purity and germination. Charge, $1.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Crop Improvement. 3 semester hours. Second Semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110 and An. Husb. 221. Reitz. Principles of pure seed

production and of breeding, selection and hybridization of field crops, including laboratory, greenhouse, and field methods of plant breeding. Charge, $1.

203. Pasture Improvement I. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite. Agron. 110, 111. Anderson. Establishment, management, and utilization of tame and native pastures. Charge, $1.

205. Principles of Agronomic Experimentation. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: Agron. 110, 111 and 130. Offered in 1945-46 and alternate years thereafter. Laude. Methods and principles of research and statistical analyses of experimental data.

208. Plant Genetics. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: An. Husb. 221. Offered in 1946-47 and alternate years thereafter. Reitz. An advanced course dealing with genetic principles as applied to plant species.

209. Genetics Seminar. 1 semester hour. Each semester.
One hour of recitation a week. Prerequisite: Consult instructor. Reitz. Study and criticism of genetic experiments in plants and animals and of the biological and mathematical methods employed.

210. Crop Problems. Credit to be arranged. Each semester and summer.
Prerequisite: Agron. 110 and 130. Staff. Deposit, $4.

211. Crop Ecology. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite Agron. 110 and 130. Laude. A study of environmental conditions that influence growth of crops; natural and economic factors primarily responsible for the concentration of crop production in different regions and countries.

214. Advanced Crops. 3 semester hours. First semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron, 110, 111, Offered in 1945-'46 and alternate years thereafter. Zahnley. Growth habits, production methods, classification and grading of forage, fiber, sugar, root, and other crops not considered in previous courses. Charge, $1.

215. Pasture Improvement II. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: Agron. 203, 208. Offered in 1946-'47 and alternate years thereafter. Anderson. Experimental methods, selection and breeding of tame and native pasture plants.

216. Agronomic Literature. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: Senior standing. Reitz, Myers. A review of recent developments in agronomy.

217. Weed Control. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: Agron. 110, 111. Zahnley. Identification, growth habits, and methods of control of the principal noxious weeds.

FOR GRADUATE CREDIT

301. Research in Crops. Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff. Special problems which may extend through the year and furnish data for a master's thesis. Deposit, $4.

COURSES IN SOILS

FOR UNDERGRADUATE CREDIT

130. Soils. 4 semester hours. Each semester.
Three hours of recitation, two hours of laboratory, and one hour of unassembled laboratory a week. Prerequisite: Chem. 101, Geol. 103. Throckmorton, Hide and Myers. Fundamental principles underlying the formation, fertility, and management of soils. Charge, $3.

FOR GRADUATE AND UNDERGRADUATE CREDIT

231. Soil Conservation II. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: Agron. 130. Myers. Principles of soil and water conservation, management and use under light rainfall condition.

235. Development and Classification of Soils. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 130. Hide. Influence of soil-forming agencies on soil characteristics and methods of classifying and mapping soils. Charge, $1.

236. Soil Problems. Credit to be arranged. First and second semester and summer.
Prerequisite depends on the problem assigned. Staff. Deposit, $4.

244. Soil Conservation I. 3 semester hours. Each semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 110, 130. Myers. Erosion control, nitrogen maintenance, crop rotations, and use of lime, manure, and commercial fertilizer under humid conditions. Charge, $1.

248. Soil Fertility. 3 credit hours. First semester.
Three hours of recitation a week. Prerequisite: Agron. 130, Bot. 208. Hide. Fundamentals of soil fertility with major emphasis on chemical, physical, mineralogical, and biological processes.

249. Methods of Soil Investigation. 2 credit hours. First semester.
Six hours of laboratory a week. Prerequisite: Agron. 130, Chem. 103. Offered in 1945-'46 and alternate years thereafter. Hide. Laboratory procedure for chemical and physical studies of soils. Charge, $4.

FOR GRADUATE CREDIT

331. Research in Soils. Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff. Special problems which may extend throughout the year and furnish data for a master's thesis. Deposit, $4.

Animal Husbandry

Professor Weber
Professor McCampbell
Professor Cox
Professor Bell
Professor Ibsen
Professor Aubel
Associate Professor Mackintosh
Assistant Professor Cathcart

The courses in the Department of Animal Husbandry give the student special instruction in the selection, breeding, feeding, marketing, and management of all classes of livestock.

The department devotes 624 acres of land to the maintenance of herds and flocks of purebred cattle, sheep, hogs, and horses, and feeds experimentally from 750 to 1,000 animals each year, giving excellent opportunity to study problems in feeding.

The laboratory of the animal husbandry student is the feed lot and the judging pavilion, where the animal can be studied from the standpoint of the breeder and the feeder.

FOR UNDERGRADUATE CREDIT

126. Elements of Animal Husbandry. 2 semester hours. Each semester.
Two hours of recitation a week. Staff. A survey of the field of animal husbandry, with special emphasis on the importance of livestock as a major phase of agriculture.

127. Livestock Judging. 1 semester hour. Each semester.
Three hours of laboratory a week. Staff. A study of type, conformation, and quality of different breeds and classes of livestock, including practice in judging. Charge, 50 cents.

140. Advanced Livestock Judging I. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: An. Husb. 127. Bell. Judging market animals and different breeds of livestock. One field trip. Charge, 50 cents.

143. Advanced Livestock Judging II. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: An. Husb. 140. Bell. Continuation of An. Husb. 140. One field trip required. Charge, 50 cents.

146. Form and Function in Livestock. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: An. Husb. 143. Bell. A detailed study of animal form and type; influence of type upon function; special training in presenting orally the relative merits of animals of all breeds. Charge, 50 cents.

152. Principles of Feeding. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Chem. 125 or its equivalent. Staff. The digestive system and processes of nutrition; origin, chemical analysis, and feeding values of different feeds; nutritive requirements for maintenance, growth, and production of farm animals.

154. Beef-cattle Production. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Weber.

157. Swine Production. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Aubel.

160. Sheep Production. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Cox.

165. Horse Production. 2 semester hours. First semester.
Two hours of recitation a week. Prerequiste: An. Husb. 152. Cathcart.

168. Meats. 3 semester hours. Each semester.
Two hours of recitation and three of laboratory a week. Prerequisite: An. Husb. 127. Mackintosh. Killing, dressing, cutting, curing, judging, selecting, and grading meats. Charge, $1.

171. Livestock Production. 3 semester hours. First semester.
Three hours of recitation a week. Prerequisite: An. Husb. 152. Open only to juniors and seniors not majoring in animal husbandry. Staff. Practical insight into the production of beef cattle, horses, swine and sheep.

176. Meats H. E. 1 semester hour. Each semester.
Three hours of laboratory a week. Prerequisite: Foods II, 107. For juniors and seniors in home economics. Mackintosh. Selecting, cutting, and curing meats; grading carcasses; uses of the various cuts. At least one field trip. Charge, $1.

188. Animal Husbandry Practicums. 2 semester hours. Second semester.
Six hours of laboratory a week. Staff. Manual phases of livestock management. Charge, 50 cents.

190. Livestock Feeding. 3 semester hours. Second Semester.
Three hours of recitation a week. Prerequisite: Chem. 122 and Physiol. 222. Open only to students in the Curriculum in Veterinary Medicine. McCampbell. A resume of digestion and nutrition dealing primarily with practical feeding.

FOR GRADUATE AND UNDERGRADUATE CREDIT

221. Genetics. 3 semester hours. Each semester and summer.
Three hours of recitation a week. Prerequisite: Zoöl. 105 or Bot. 102. Ibsen. Variation, Mendelian inheritance, and related subjects.

224. Animal Breeding. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: An. Husb. 221. Aubel. Physiology of reproduction; heredity; variation; systems of mating, pedigrees and herdbook standards; practices of leading breeders.

225. Advanced Genetics. 4 semester hours. Second semester.
Three hours of recitation and three of laboratory a week. Prerequisite: An. Husb. 221. Ibsen. Particular attention is given to the relation of chromosomes to heredity.

227. Genetics Seminar. 1 semester hour. Each semester.
One hour of recitation a week. Prerequisite: Consult instructors. Nabours, Ibsen, Reitz, Warren. Genetics experiments in plants and animals, the biological and mathematical methods employed, and the validity of conclusions drawn.

229. Research in Genetics. Credit to be arranged. Each semester.
Prerequisite: An. Husb. 225. Ibsen. Problems in which small mammals are used as the experimental animals.

233. Advanced Feeding. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: An. Husb. 152. Weber. The principles of nutrition underlying satisfactory feeding practices.

244. Animal Husbandry Seminar. 1 semester hour. Second semester.
One hour of recitation a week. Prerequisite: An. Husb. 152. Open only to senior and graduate students majoring in animal husbandry. Staff.

245. Animal Husbandry Problems. Credit to be arranged. Each semester and summer.
Prerequisite: An Husb. 152 and other courses; consult instructor. Staff.

247. Advanced Studies in Breeds. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Consult instructor. Weber. Present status, blood lines, and breeders of purebred beef cattle, horses, swine, and sheep.

250. Purebred Livestock Production. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: An. Husb. 152. Senior or graduate standing. McCampbell. Factors influencing success in the production of purebred livestock. One field trip.

260. Livestock and Meat Industry. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: An. Husb. 126 and 152. Weber. The livestock and meat industry; its organization, operation, and development; relation to the public. Lectures, assigned reading, and reports.

268. Principles of Animal Husbandry Experimentation. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: An. Husb. 152 and 221. Weber, Cox, Ibsen. Conducting and interpreting experiments involving the use of animals.

274. Advanced Meats. 1 to 4 hours. First semester.
Prerequisite: An. Husb. 168. Mackintosh. Grading; nutritive values; factors influencing quality; dressing percentages; identification of meats from different animals.

290. Problems in Training Agricultural Judging Teams. 2 semester hours. Summer (four weeks).
Ten hours of recitation a week. Prerequisite: An. Husb. 127, Agron. 111, Poult. 101, Dairy Husb. 101, and one year's teaching experience. Cox, Zahnley, Wise, Davidson. A seminar course in training agricultural judging teams.

FOR GRADUATE CREDIT

301. Research in Animal Husbandry. Credit to be arranged. Each semester. Prerequisite: Consult instructor. Staff. Special problems in genetics and in the production of all kinds of livestock except dairy cattle.

311. The Wool Industry. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Prerequisite: An. Husb. 160. Cox. Supply and demand; production; marketing; manufacturing.

Dairy Husbandry

Professor Atkeson
Professor Martin

Associate Professor Wise
Associate Professor ————
Assistant Professor Beck

The Department of Dairy Husbandry with its modern dairy barn and dairy products processing plant is well equipped to train men for key positions in the dairy industry.

A wider application of science to the problems of milk production and manufacturing of dairy products requires technically trained men. Men who have taken courses in bacteriology, chemistry, mathematics, accounting, and engineering and commercial subjects as a background for the dairy courses have a decided advantage.

The Department of Dairy Husbandry offers instruction in dairy production, which includes dairy cattle feeding, management, breeding, milk production, and judging. Instruction in the dairy products field includes the manufacture of butter, cheese, ice cream, condensed milk, and market milk.

A purebred herd of Holstein, Guernsey, Jersey, and Ayrshire cattle owned by the College provides animals for dairy judging classes and for feeding and breeding experiments. The department also operates a commercial creamery where students may receive actual experience in the processing of dairy products.

FOR UNDERGRADUATE CREDIT

101. Elements of Dairying. 3 semester hours. Each semester.
Two hours of recitation and three hours of laboratory work a week. Atkeson, Martin. Problems of the milk producer and manufacturer; feeding, handling, breeding, and selecting of dairy cattle; composition and properties of milk; manufacture of dairy products. Charge, $3.

104. Dairy Cattle Judging for Veterinary Students. 1 semester hour. First semester.
Three hours of laboratory a week. Wise. Charge, 50 cents.

105. Dairy Cattle Judging. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Dairy Husb. 101. Atkeson. Charge, 50 cents.

106. Dairy Inspection. 2 semester hours. First semester.
One hour of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101. Martin. Advanced work in testing dairy products and testing for adulteration; practice in use of dairy and creamery score cards; state and city ordinances; duties of city, state, and government inspectors. Charge, $3.50.

108. Milk Production. 3 semester hours Second semester.
Three hours of recitation a week. Prerequisite: Dairy Husb. 101 and Animal Husb. 152 or 190. Atkeson. Handling the dairy herd; construction of dairy barns and buildings; other subjects concerning the dairy farmer. Charge, 50 cents.

110. Butter Making. 3 semester hours. First semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Martin. The butter industry; cream production and care, on the farm and in the plant; manufacturing, marketing, and food value of butter. Sampling and grading cream, butter analysis and tests, preparation of cream for churning, manufacture of butter. Charge, $3.

116. Market Milk. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Martin. Classes of market milk; clean milk production; relation of clean milk to producer, dealer, and consumer; milk inspection, score cards, and milk and cream contests; milk plants. Actual processing of market milk and cream. Charge, $3.

119. Dairy Inspection for Veterinary Students. 2 semester hours. Second semester.
One hour of recitation and three hours of laboratory a week. Martin. Composition and properties of milk; clean milk production; study of state and city ordinances affecting milk and dairy products. Testing of milk and dairy poducts; preparation and testing of chemical disinfectants; scoring of dairy farms and milk plants. Charge, $3.50.

120. Advanced Dairy Cattle Judging. 1 semester hour. First semester.
Three hours of laboratory a week. Atkeson. Continuation of Dairy Husb. 105; visits to some of the best farms in the state. Charge, 50 cents.

128. Condensed and Powdered Milk. 3 semester hours. First semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 101 and Bact. 101. Offered in 1945-'46 and alternate years thereafter. Martin. History, methods, condensing machinery, and powdered-milk industry. Condensing milk in the College plant. Charge, $3.

130. Ice Cream Making. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 106 and Bact. 101. Offered in 1946-'47 and alternate years thereafter. Martin. Theory and practice in the manufacture of frozen dairy foods. Charge, $3.

135. Cheese Making. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 106 and Bact. 101. Offered in 1945-'46 and alternate years thereafter. Martin. Theory and practice in the manufacture of the various types of cheese. Charge, $3.

140. Dairy Products Judging. 1 semester hour. Second semester.
Three hours of laboratory a week. Prerequisite: Dairy Husb. 101. Martin. Charge, $3.

141. Advanced Dairy Products Judging. 1 semester hour. First semester.
Three hours of laboratory a week. Martin. Continuation of Dairy Husb. 140. Charge, $3.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Dairy Seminar. 1 semester hour. Second semester.
One hour of recitation a week. Prerequisite: Dairy Husb. 101, 106, and 108. Atkeson, Martin, Wise. Study of dairy periodicals, bulletins, books, other dairy literature. Charge, 50 cents.

207. Feeding and Management of Dairy Cattle. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Dairy Husb. 108 and An. Husb. 152. Offered in 1946-'47 and alternate years thereafter. Wise. Includes fitting of animals for show and sale. Charge, $2.

214. Dairy Cattle Breeding and Selection. 3 semester hours. Second semester.

Two hours of recitation and three hours of laboratory a week. Offered in 1945-'46 and alternate years thereafter. Atkeson. History of breeds and families; inheritance of milk secretion; bull indexes; selection of herd sire; systems of breeding. Herdbook studies; pedigree writing and analysis. Charge, $2.

216. Dairy Production Problems. Credit to be arranged. Each semester and summer.

Prerequisite: Dairy Husb. 101, 105, 108, and An. Husb. 152. Atkeson, Wise.

221. Dairy Manufacturing Problems. Credit to be arranged. Each semester.

Prerequisite: Dairy Husb. 101, 106, and 110. Martin.

226. Dairy Plant Management. 2 semester hours. First semester.

Two hours of recitation a week. Prerequisite: Dairy Husb. 110. Offered in 1946-'47 and alternate years thereafter. Martin.

FOR GRADUATE CREDIT

301. Research in Dairy Husbandry. Credit to be arranged. Each semester.

Prerequisite: Consult instructor. Atkeson, Martin, Wise. Special investigation in dairy production or manufacturing which may be used as a basis for a master's thesis.

Dairy Mechanics. See Agr. Engg. 202.

Dairy Bacteriology. See Bact. 212.

Dairy Chemistry. See Chem. 275.

Marketing of Dairy Products. See Agr. Econ. 251.

General Agriculture

Dean Call
Associate Professor Mullen
Assistant Professor Neff

102. Freshman Lectures. 1 semester hour. First semester.

One hour of recitation a week. Call, Mullen, various faculty members. Guidance in learning to study; information regarding opportunities for graduates in various fields.

103. Agricultural Seminar. Required. Each semester.

Four meetings each semester. Programs presented by students, members of faculty, invited speakers. Charge, 75 cents.

105. Agricultural Relationships. Required. Second semester.

One hour of recitation a week. Senior standing. Call. Responsibilities and opportunities for agricultural graduates as citizens and as specialists in various phases of agricultural activity.

106. Extension Methods for Men. 3 semester hours. First semester.

Three hours of recitation a week. Neff. Problems of organization, administration, and supervision of state extension work. Designed for persons interested in county agent or other types of extension work. Juniors and seniors only.

107. Farm Practices I. 3 semester hours. First semester.

Nine hours of laboratory a week. Prerequisite: Junior or senior standing. To be taken preferably in the senior year. Staff includes a director and coordinator from the Department of Education in coöperation with subject-matter instructors in the School of Agriculture. Participation in farm prac-

tices, skills, and techniques required by teachers of vocational agriculture, and training in the organization and presentation of such materials.

108. Farm Practices II. 3 semester hours. Second semester.
Nine hours of laboratory a week. A continuation of Farm Practices I.

Horticulture

Professor Pickett
Professor Barnett
Professor Quinlan
Associate Professor Filinger
Associate Professor Decker
Assistant Professor Abmeyer
Assistant Professor Bates
Instructor Willis
Research Assistant Birkeland
Graduate Assistant Ealy

Instruction offered in the Department of Horticulture includes general horticulture, landscape design, vegetable gardening, floriculture, pomology, and forestry.

Thorough preparation for those interested in professional or commercial fruit growing or vegetable growing is provided through available groups of electives in the Curriculum in Agriculture.

The four-year Curriculum in Landscape Design leads to the degree Bachelor of Science in Landscape Design and is intended for students who wish training in design and drafting. The four-year Curriculum in Floriculture and Ornamental Horticulture is intended for those who wish to become florists or nurserymen with emphasis on the production and use of landscape materials.

The horticultural farm, the campus, the greenhouses, and research laboratories provide plant materials and equipment for instructional and research use.

COURSES IN GENERAL HORTICULTURE

FOR UNDERGRADUATE CREDIT

101. Plant Propagation. 3 semester hours. First semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Filinger. Principles and practice of propagating horticultural plants. Charge, $2.

104. Elements of Horticulture Recitation. 2 semester hours. Each semester and summer.
Two hours of recitation a week. Prerequisite: Bot. 102. Staff. Principles and practices in the several phases of horticulture.

105. Elements of Horticulture Laboratory. 1 semester hour. Each semester.
Three hours of laboratory a week. Prerequisite: Bot. 102. To be taken concurrently with Hort. 104, if possible. Filinger. Study of horticultural plants, including identification, propagation, pruning, spraying, transplanting, cover crops, fruit varieties, etc. Charge, $2.50.

FOR GRADUATE AND UNDERGRADUATE CREDIT

207. Spraying. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Junior or senior classification. Pickett, Filinger. Spray machinery; chemical properties; insecticides; fungicides; spray dates; fumigation. Charge, $2.

208. Literature of Horticulture. 2 semester hours. Second semester.
Two hours of recitation a week. Open only to junior, senior, and graduate students in horticulture. Offered in 1946-'47 and alternate years thereafter. Filinger. Books and publications are reviewed and bibliographies prepared.

235. Horticulture Seminar. 1 semester hour. Each semester.
One hour of recitation a week. Open only to junior, senior, and graduate students in horticulture. Pickett. Critical discussion of horticultural publications and of experimental and research projects under way at this and

other experiment stations. May not be taken for more than three credit hours.

244. Horticultural Problems. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor. Staff. Investigations and reports in pomology; olericulture; floriculture; forestry; or landscape design.

FOR GRADUATE CREDIT

301. Research in Horticulture. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor. Staff. Problems in pomology, olericulture, floriculture, or landscape design. Data collected may form basis for a master's thesis.

COURSES IN FORESTRY

FOR UNDERGRADUATE CREDIT

114. Farm Forestry. 3 semester hours. First semester.

Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Pickett. Management and utilization of wood lots and tree belts. Charge, $2.

119. Silviculture. 3 semester hours. First semester.

Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Pickett. Ecology of the forest; regions, types. Charge, $2.

120. Forest Nursery Practice. 3 semester hours. First semester.

Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Pickett. Tree seed; planting practice; regeneration. Charge, $2.

COURSES IN LANDSCAPE DESIGN

FOR UNDERGRADUATE CREDIT

102. Plant Materials I. 3 semester hours. First semester.

Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Quinlan. Perennials and annuals for general ornamental planting; planting plans. Charge, $2.

103. Plant Materials II. 3 semester hours. Second semester.

Two hours of recitation and three of laboratory a week. Prerequisite: Bot. 102. Quinlan. Trees, shrubs, vines for ornamental planting; planting plans and reports. Charge, $2.

125. Landscape Gardening. 3 semester hours. First semester and summer.

Three hours of recitation a week. Quinlan. An introductory course in the fundamental principles of landscape design.

FOR GRADUATE AND UNDERGRADUATE CREDIT

223. Civic Art. 3 semester hours. Second semester.

One hour of recitation and six of laboratory a week. Prerequisite: Hort. 243. Offered in 1945-'46 and alternate years thereafter. Quinlan. Growth and development of cities and towns; land subdivision. Charge, $1.

227. Landscape Construction. 3 semester hours. First semester.

Two hours of recitation and three of laboratory a week. Offered in 1946-'47 and alternate years thereafter. Quinlan. Topographic maps; grading plans, structures, sewage, water supply, lighting, and drainage on the private estate. Charge, $1.

228. Planting Design. 2 semester hours. Second semester.

Six hours of laboratory a week. Prerequisite: Hort. 103. Offered in 1946-'47 and alternate years thereafter. Quinlan. The use of plants in landscape composition. Perspective and elevational sketches and plans. Charge, $1.

238. Landscape Design I. 3 semester hours. First semester.
One hour of recitation and six of laboratory a week. Prerequisite: Hort. 103 and 125. Quinlan. Elementary designing of the home grounds; country estates; special gardens; sketch problems. Charge, $1.

243. Theory of Landscape Design. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: Hort. 125. Offered in 1945-'46 and alternate years thereafter. Quinlan. The economic and esthetic theory of design; taste, character, historic style, and composition; natural elements in design.

246. Landscape Design II. 3 semester hours. Second semester.
One hour of recitation and six of laboratory a week. Prerequisite: Hort. 238 and 243. Quinlan. Advanced course in designing of large parks, cemeteries, golf courses, educational groups; and high-class land subdivisions. Sketch problems. Charge, $1.

COURSES IN POMOLOGY

FOR UNDERGRADUATE CREDIT

108. Small Fruits. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: Bot. 102. Filinger. Growing, harvesting, and marketing small fruits.

111. Systematic Pomology. 3 semester hours. First semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Hort. 104 and 105. Filinger. Technical study of fruit varieties, varietal relationships, pomological nomenclature, variety description, artificial and natural systems of variety classification, judging. Charge, $2.

112. Preserving Food by Freezing. 3 semester hours. First semester and summer.
Two hours of recitation and three of laboratory a week. Filinger. Selection and preparation of foods for freezing; managing and operating frozen food locker plants; selecting and using home-frozen food cabinets; judging of frozen foods prepared and stored by various methods. Charge, $3.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Practical Pomology. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Hort. 111. Filinger. Applied orcharding; manufactured products; finances; marketing; grading and packing fruits; identification of fruit plant varieties; advanced pruning. Charge, $2.

202. Subtropical Pomology. 2 semester hours. Second semester.
Two hours of recitation a week. Prerequisite: Hort. 111. Offered in 1945-'46 and alternate years thereafter. Pickett. Botany, geography, and culture of subtropical fruits.

205. Advanced Pomology. 3 semester hours. First semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Hort. 111. Pickett, Filinger. A course in the fundamentals of orcharding, advanced judging. Charge, $2.

COURSES IN VEGETABLE GARDENING AND FLORICULTURE

FOR UNDERGRADUATE CREDIT

127. Greenhouse Construction and Management. 3 semester hours. Second semester.
Three hours of recitation a week. Willis. Greenhouse maintenance, heating, ventilation, soils, and water.

133. Vegetable Gardening. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Decker. Principles underlying vegetable production for the home or local market, special attention given to farm gardens, varieties, planting schedules, and crop rotations. Charge, $2.

135. Floral Arrangement I. 2 semester hours. First semester.
One hour of recitation and three of laboratory a week. Consult instructor for prerequisites. Decker. The commercial flower shop, source of supplies, sales, arrangement of flowers for various occasions. Charge, $3.

136. Floral Arrangement II. 2 semester hours. Second semester.
One hour of recitation and three of laboratory a week. Consult instructor for prerequisites. Continuation of Hort. 135. Willis. Care of cut flowers, packing, delivery, and arrangements. Charge, $3.

140. Commercial Floriculture I. 3 semester hours. First semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Hort. 127. Willis. Principles underlying the culture of greenhouse crops. Charge, $2.

141. Commercial Floriculture II. 3 semester hours. Second semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Hort. 140. Willis. Continuation of Hort. 140. Charge, $2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

210. Market Gardening. 3 semester hours. First semester.
Two hours of recitation and three of laboratory a week. Prerequisite: Agron. 130 and Hort. 133. Decker. Competitive areas, market requirements, harvesting, grading, packing, sources of market supplies, and prices. Charge, $2.

214. Horticultural Cash Crops. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: Agron. 130, and Hort. 133. Decker. Vegetable crops grown in Kansas principally as cash crops; potatoes, sweet potatoes, watermelons, and cantaloupes.

Milling Industry

Professor Bayfield
Professor Swanson
Professor Shellenberger
Associate Professor Pence
Assistant Johnson

The Department of Milling Industry offers courses to prepare students for work in flour-milling operation, products control, or administration.

The department has a flour mill of 130 sacks daily capacity, equipped as a commercial plant and also with many features designed for research and instruction. For the study of elements of milling and special problems in milling technology, there are several units of experimental mills.

The baking laboratory has dough mixers, proofing cabinets, ovens, and other apparatus needed for baking tests in elementary and advanced work. The chemical laboratory has the usual chemical apparatus for wheat and flour testing, and special equipment for work on advanced problems.

FOR UNDERGRADUATE CREDIT

101. Elements of Milling. 2 semester hours. Each semester.
One hour of lecture, two hours of laboratory; and one hour of unassembled laboratory a week. Pence. Elementary milling of wheat. Charge, $2.

102. Survey of Milling Industry. 1 semester hour. First semester.
One hour of lecture. Bayfield. A general survey of the milling industry field.

103. Flow Sheets. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: Mill. Ind. 101, and Mach. Des. 101. Pence. The construction and assembling of a flow sheet. Charge, $2.

107. Principles of Baking. 3 semester hours. Second semester.
One hour of lecture and six hours of laboratory a week. Shellenberger and Johnson. Baking procedures and interpretation of qualities in baked products. Not open for credit to students who major in milling chemistry. Charge, $5.

109. Milling Practice I. 3 semester hours. Each semester.
One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 103. Pence. A study of milling machinery and methods of checking flour mill operations. Charge, $2.

111. Milling Practice II. 3 semester hours. First semester.
One hour of lecture and six hours of laboratory a week. Prerequisite: Mill. Ind. 109. Pence. A study of roll and bolting surfaces, millwright work and controls of flour mill operation. Charge, $2.

118. Milling Industry Seminar. Required. Each semester.
One lecture each in milling and in agriculture seminar a month. Staff. Discussion of problems of general interest to all students in milling industry. Charge, $1.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Milling Technology I. 2 semester hours. First semester.
Six hours of laboratory work a week. Prerequisite: Mill. Ind. 109. Pence. Technical study of special phases of wheat conditioning and flour milling. Charge, $2.

202. Milling Technology II. 2 semester hours. Second semester.
Six hours of laboratory work a week. Prerequisite: Mill. Ind. 111. Pence. A study of the physical, chemical, and engineering principles used in control of flour mill operation. Charge, $2.

203. Flour Mill Construction. 3 semester hours. Second semester.
Eight hours of laboratory and one hour of unassembled laboratory a week. Prerequisite: Mill. Ind. 111, Mach. Des. 111 and 121. Pence. A study of mill flows and the design of a flour mill.

205. Wheat and Flour Testing. 3 semester hours. First semester.
Nine hours of laboratory a week. Prerequisite: Chem. 122 and 215. Shellenberger. Special quantitative tests of cereals and their products; methods of analysis and interpretation of results. Deposit, $7.50.

207. Experimental Baking. 4 semester hours. Second semester.
One hour of lecture, six hours of laboratory, and three hours of unassembled laboratory a week. Prerequisites: Chem. 125. Shellenberger and Johnson. Practice in baking tests; comparison of methods, formulas, and flours; interpretation of results. Charge, $5.

210. Advanced Wheat and Flour Testing. 1 to 5 semester hours. Each semester.
Three hours of laboratory work for each semester credit a week. Prerequisite: Mill. Ind. 205. Shellenberger. Physical and chemical methods used in testing wheat and flour. Deposit, $2.50 per hour.

212. The Qualities of Wheat and Flour. 3 semester hours. Second semester.
Three hours of lecture and recitation a week. Prerequisite: Chem. 122 or 125. Shellenberger. The qualities of wheat and flour as affected by growth, storage, physical, chemical, and biological factors.

214. Milling Industry Problems. Credit to be arranged. Each semester and summer.

Prerequisite: Mill. Ind. 212 or such other courses as are necessary for the problem selected. Staff. Charge, $2.50 per hour.

FOR GRADUATE CREDIT

301. Research in Milling Industry. Credit to be arranged. Each semester and summer.
Prerequisite: Consult staff. Research may be used as basis for the graduate thesis.

318. Graduate Seminar in Milling Industry. 1 semester hour. Each semester.
One hour of recitation a week. Staff. Discussion of technical problems in the cereal industry. Required of all graduate students in milling industry.

Poultry Husbandry

Professor PAYNE
Professor WARREN
Associate Professor AVERY
Farm Superintendent HALL

The poultry plant, occupying about thirty acres and situated just north of the northeast corner of the College campus, is devoted to the breeding, rearing, and management of the stock used for class and experimental work.

FOR UNDERGRADUATE CREDIT

101. Farm Poultry Production. 2 semester hours. Each semester.
One hour of recitation and three hours of laboratory a week. Payne, Avery. An introductory course dealing with numerous phases of poultry production. Charge, $2.

103. Poultry Husbandry. 3 semester hours. Summer.
Two hours of recitation and three hours of laboratory a week. Avery. A general introductory course dealing with problems on the farm. Charge, $2.

109. Poultry Judging. 3 semester hours. First semester.
One hour of recitation and two hours of laboratory a week. Prerequisite: Poul. Husb. 101. Avery. Production characteristics and evolution of present breeds and types. Judging the standard breeds and varieties by comparison; judging hens for egg and meat production on the basis of certain physical characteristics. Charge, $2.

116. Market Poultry and Eggs. 4 semester hours. First semester.
Two hours of recitation, three hours of laboratory, and the equivalent of three hours a week of special work fattening and dressing poultry. Prerequisite: Poul. Husb. 101. Offered 1945-'46 and alternate years thereafter. Payne. Methods of handling market eggs and live and dressed poultry. Candling and grading eggs; crate feeding, killing, dressing, grading and packing market poultry. Charge, $2.

120. Artificial Incubation and Brooding. 3 semester hours. Second semester.
One hour of recitation and three trips a day, seven days a week for not fewer than eight weeks to the College Poultry Farm at hours outside the regular schedule. Prerequisite: Poul. Husb. 101 and Zoöl. 105. Offered in 1946-'47 and alternate years thereafter. Avery. Development of the chick; metabolism; survey of the literature on incubation and brooding; actual care of an incubator and a brooder for three weeks each. Charge, $2.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Physiology and Nutrition of the Fowl. 3 semester hours. Second semester.
Two hours of recitation and three hours of laboratory a week. Prerequisite: Poul. Husb. 101, An. Husb. 152, and Anat. 131. Offered 1945-'46 and

alternate years thereafter. Avery. Designed for advanced students. The nutritive requirements of the fowl are considered together with metabolism of nutrients, respiration, digestion and excretion. The feeding and care of chicks on deficient diets, influence of hormone administration on primary and secondary sex characters and surgical technics. Charge, $2.

204. Poultry Genetics. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: An. Husb. 221. Warren. Special reference to the bearing of genetics on practical poultry breeding problems.

Poultry Farm Organization. See Agr. Econ. 206A.

Poultry Sanitation. See Bact. 218.

Poultry Anatomy. See Physiol. 202.

206. Poultry Problems. Credits to be arranged. Each semester.
One to three hours a week by appointment. Prerequisite: Poul. Husb. 101; consult instructors. Payne and Warren. Investigation of a practical nature which may be continued into the next semester if necessary.

210. Genetic Seminar. 1 semester hour. Each semester.
One hour in class room a week. Prerequisite: Consult Warren. Genetic experiments in plants and animals; the biological and mathematical methods employed; and the validity of conclusions drawn.

216. Poultry Management. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Poul. Husb. 101; senior or graduate standing. Payne. A detailed study of all phases of farm and commercial flocks, including cost of production.

220. Poultry Seminar. 1 semester hour. First semester.
One hour of recitation or conference a week. Prerequisite: Poul. Husb. 101. Warren. Required of all juniors majoring in poultry husbandry and continued into the senior year. Also required of graduate students.

FOR GRADUATE CREDIT

301. Research in Poultry Husbandry. Credit to be arranged. Each semester.
Conferences by appointment. Prerequisite: Poul. Husb. 101, 109, 116, and 120; consult instructors, Warren and Payne. Investigations which may form the basis of a master's or doctor's thesis.

The Agricultural Experiment Station

LELAND EVERETT CALL, *Director*

The Kansas Agricultural Experiment Station was organized under the provision of an act of congress, approved March 2, 1887, which is commonly known as the Hatch act.

Two days later, March 4, 1887, the legislature of Kansas adopted a resolution accepting the conditions of the Hatch act, and vesting the responsibility of carrying out its provisions in the Board of Regents of Kansas State College.

The Hatch act carried an annual congressional appropriation of $15,000. No further addition to this amount was made until the passage of the Adams act, approved March 16, 1906, which provided a sum beginning with $5,000, and increasing each year by $2,000 over the preceding year for five years. Since this time the annual appropriation has been $15,000. Under the Adams act, experiments entered upon must be approved by the Office of Experiment Stations of the United States Department of Agriculture.

The Purnell act, approved February 24, 1925, authorized an appropriation of $20,000 for the fiscal year beginning July 1, 1925, with allotments increasing annually by $10,000 until a total of $60,000 was reached for the fiscal year beginning July 1, 1929. The Purnell act is broad in scope and provides specifically for scientific research in agricultural economics, home economics, and rural sociology, in addition to providing more liberal support for the older established work of the Agricultural Experiment Station.

A fourth act authorizing support for the agricultural experiment stations is the Bankhead-Jones act, approved June 29, 1935. This act authorizes appropriations to the land-grant colleges for research, based upon the rural population of the various states. The amount available to Kansas was approximately $12,000 for the first fiscal year, and amounts now to approximately $50,000 annually. The Bankhead-Jones act states specifically that the research authorized shall be in addition to research provided for under existing laws and that no allotment of funds shall be made to a state for any fiscal year in excess of the amount which the state makes available for such fiscal year out of its own funds for research.

The Agricultural Experiment Station is, then, a research agency organized to ascertain facts of value to agriculture. It devotes its attention solely to the solution of problems of the farm and the farm home.

Farms, livestock, laboratories, and general equipment of the College are all directly available for the use of the station.

More than one hundred projects covering practically all phases of agricultural investigation are being studied by the members of the experiment station staff. Results of this work are published in the form of scientific papers and bulletins and circulars intended primarily for the general reader.

All bulletins and other publications from the Agricultural Experiment Station are sent without charge to citizens of the state. Any person in the state may have his name placed on the permanent mailing list of the station.

Letters of inquiry and general correspondence should be addresed to Agricultural Experiment Station, Manhattan, Kansas. Special inquiries should be directed, as far as possible, to the head of the department having charge of the matter concerning which information is desired.

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Branch Agricultural Experiment Stations

FORT HAYS BRANCH STATION

Land occupied by this station is part of what was originally the Fort Hays military reservation. A bill was approved by congress March 28, 1900, setting aside this reservation for experimental and educational purposes. By act of the state legislature, approved February 7, 1901, the act of congress donating this land and imposing the support of these institutions was accepted. The same session of the legislature passed an act providing for the organization of a branch experiment station and appropriating a small fund for preliminary work. In the division of this land, the college received 3,560 acres.

The work of this station may be divided into two divisions: (a) Experimental projects; (b) general farm and livestock work. Investigations are confined primarily to the study of problems peculiar to the western half of the state where rainfall is limited. Facilities of the station are also being used for the growing of large quantities of pure seed of the strains and varieties which have proved in actual test to be most productive in the western part of the state.

GARDEN CITY BRANCH STATION

In 1906, the county commissioners of Finney county purchased for purposes of agricultural experimentation a tract of land amounting to 320 acres, situated four and one-half miles from Garden City in western Kansas. The land has been leased for a term of ninety-nine years to the Kansas Agricultural Experiment Station as an experimental and demonstration farm. Investigations in irrigation are conducted at this station.

COLBY BRANCH STATION

The legislature of 1913 provided for the establishment of a branch experiment station near Colby, in northwestern Kansas. It is located on a tract of 314 acres. The land was purchased by the county and deeded to the state. Operations were begun in March, 1914. Cropping experiments are being conducted under dry-land conditions and under irrigation. The primary purpose of the Colby station is to determine the best methods of developing the agriculture of northwestern Kansas.

TRIBUNE BRANCH STATION

At the Tribune station experimental and demonstration work is conducted for the benefit of the surrounding western territory. Special attention is paid to the problems of producing crops under conditions of limited rainfall.

The School of Arts and Sciences

Rodney Whittemore Babcock, *Dean*

In the land-grant colleges, the classical studies are replaced by work in the sciences and in profesional and vocational subjects. Education should also include some preparation for the discharge of one's duties to the state and to the community. It is the province of the departments grouped in this school of the College to give this basic scientific and cultural training.

Curriculum in Arts and Sciences

The purpose of this curriculum is to provide for the needs of two groups of students. The freshman year is prescribed for both groups. Option A offers opportunity for major work in English, languages, speech (including dramatics and radio), and art. Option B includes major work in economics, sociology, psychology, personnel management and guidance, history and government. In both options there is opportunity for those who wish a diversified major in the natural sciences. By selection of courses in education, the graduate becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education, valid for teaching in any public school in Kansas.

Curriculum in Biological Science

This curriculum provides for those who wish major work in bacteriology, botany, entomology, and zoölogy. The college training for medical technicians can be obtained in this curriculum, varying from the minimum requirements in two years to a four-year course leading to a degree. By planning in advance, the two senior semesters for a medical technician may be replaced by twelve months in an approved hospital or in the laboratories of the Kansas State Board of Health. Students who desire general work for admission to a school of dentistry or human medicine should enroll in this curriculum. By selection of courses in education, the graduate becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education, valid for teaching in any public school in Kansas.

Curriculum in Business Administration

The Curriculum in Business Administration is designed to prepare men and women for citizenship and business. The option in accounting provides a sequence of courses which includes all the academic work necessary for the examinations for a Certified Public Accountant.

Curriculum in Industrial Chemistry

Demand of students for a curriculum planned especially to give chemical training is such that a formulation has been made to meet the needs of those who desire to specialize in industrial chemistry. The facilities of the Department of Chemistry, reinforced by opportunities for practical work in connection with the research of the experiment stations, provide for this specialized training.

Curriculum in Industrial Journalism

The curriculum presents such subjects as will enable the writer to see his work in proper perspective, to obtain authoritative knowledge of some field of industrial activity, and to write acceptably. It offers fundamental studies of literary, social, and scientific character. The student must select subjects in agriculture, mechanic arts, applied science, or home economics, depending on

the portion of the field of industrial journalism which he desires to enter. Theory and practice of journalism are presented in courses extending through the sophomore, junior, and senior years. Students may take additional electives in journalism.

Students who plan to go into agricultural journalism should enroll in the Curriculum in Agricultural Administration and take work leading to a degree in agriculture, taking the professional 29 hours required in the Curriculum in Industrial Journalism. Students under this plan will be given a certificate for professional work in journalism which states that they have met the requirements of the American Association of Schools and Departments of Journalism. (See Curriculum in Agricultural Administration.)

Curriculum in Industrial Physics

The fundamental importance of physics in modern technical developments is widespread. This curriculum offers professional training for the student who wishes to enter an industrial position or to continue study in a gaduate school.

Curriculums in Music

A four-year Curriculum in Music Education is offered, with specialization in voice, instrument, or public school band or orchestra. Students who complete this curriculum are awarded the degree Bachelor of Science in Music Education, and are eligible to receive a special state certificate to teach music and permission to teach any nonmusic subject in which they have completed fifteen or more college hours. If sufficient extra hours are completed so that not more than forty hours in music are submitted to the State Board of Education, the student is eligible to receive the state three-year renewable-for-life certificate.

A four-year curriculum is offered in applied music, which prepares the stuent with a major in voice, piano, violin, organ, or other instrument, and with a minor in another of these subjects. Students who complete this curriculum are awarded the degree Bachelor of Music, and are eligible to receive a three-year special state certificate in music, renewable for three-year terms if they have elected the required subjects in education.

Curriculums in Physical Education

The theoretical and practical instruction given in these curriculums prepares students for the teaching of physical and health education and the coaching of athletic games. The curriculums are also planned to enable the student to elect work in some other subject which may be taken in connection with physical education.

Curriculum in Physical Science

This curriculum provides for the needs of students who wish major work in mathematics, statistics, chemistry, physics, or geology. Those who wish more specialized training in chemistry or physics should enroll in one of the industrial curriculums. By selection of courses in education, the graduate becomes eligible for a three-year renewable-for-life certificate issued by the State Board of Education, valid for teaching in any public school in Kansas.

Curriculum in Arts and Sciences

After the freshman year, the curriculum follows two optional plans. Students must decide, on entering the curriculum, which of the two plans is to be followed.

Optional A is for students who intend to major in English, speech, dramatics, modern language, or art. Students who follow this option are required to attain proficiency equivalent to 12 hours in a modern language, and should start their work in this field in the freshman year.

Optional B is for students who intend to major in economics, psychology, history and government, or sociology. Majors in history and government are required to reach a 9-hour proficiency in a modern language, and should start their work in this field in the freshman year.

Students who wish to major in science (general) may follow either option.

All students are required to take a laboratory course in physical or biological science subsequently and in addition to the required comprehensives.

FRESHMAN

First Semester				Second Semester			
Course			*Sem. Hrs.*	*Course*			*Sem. Hrs.*
Engl.	111	Writ. Comm. I	3	Engl.	112	Writ. Comm. II	2
Sp.	111	Oral Communications	2	Comp.	102	Man's Physical World II	4
Comp.	101	Man's Physical World I	4	Hist.	107	Surv. of Civilization II	3
Hist.	106	Surv. of Civilization I	3	Educ.	184	General Psychology	3
		Modern Language	3 *or*			Modern Language	3 *or*
		Option	3			Option	3
Mil. Sc.	101	Infantry I (Men)	1	Mil. Sc.	102	Infantry II (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

Option A

SOPHOMORE

First Semester				Second Semester			
Comp	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Engl.	170	Engl. Literature I	3	Engl.	171	Engl. Literature II	3
Lib. Ec.	101	Library Methods	1			Modern Language	3
		Modern Language	3	Math.	103	Math. of Human Affairs	3
		Elective and major	4			Elective and major	2
Mil. Sc.	103	Infantry III (Men)	1	Mil. Sc.	104	Infantry IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
Engl.	173	American Literature I	3	Engl.	174	American Literature II	3
		Elective and Major*	8	Mus.	131	Hist. and App. of Mus. II	2
Engl.	169	Engl. Proficiency	R			Elective and Major	6
Total			15	Total			15

SENIOR

First Semester				Second Semester	
Arch.	125	App. of Architecture	3 *or*	Elective and Major	15
Arch.	179	Hist. of Painting and Sculpt.	3		
		Elective and Major	12		
Total			15	Total	15

Majors, including curricular requirements:

English: 30 hours subsequent to Engl. 111 and 112.
Speech, radio, dramatics: 27 hours subsequent to Sp. 111.
Languages: 30 hours.
Art: 30 hours.
Science (biological and physical): 30 hours.

* To include required science elective.

Option B

SOPHOMORE

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Econ.	101	Economics I	3	Econ.	104	Economics II	3
Engl.	170	English Literature I	3	Econ.	151	Sociology	3
		Amer. History Elect	3			History Elective	3
		Option or elective	2			Option	2
Mil. Sc.	103	Infantry II (Men)	1	Mil. Sc.	104	Infantry IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Hist.	151	American Government	3	Engl.	173	American Literature I	3
		Economics Elective	3			Sociology Elective	3
Math.	103	Math. of Human Affairs	3			Elective and Major*	9
		Elective and Major	6				
Engl.	169	English Proficiency	R				
Total			15	Total			15

SENIOR

First Semester			Second Semester		
Elective and Major	15		Elective and Major	15	

* To inclue required science elective.

Majors:

Economics: Math. 126; Hist. 105; Sp. 108, and 15 hours of economics in addition to curricular requirements.

Psychology: Econ. 258; Hist. 105 and 125; Educ. 223, 254, 260, and 270, and 12 additional hours in psychology in addition to curricular requirements.

History and Government: 12 hours in addition to curricular requirements.

Sociology: 12 hours in addition to curricular requirements.

Science (biological and physical): 30 hours including curricular requirements.

Biological Science

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Comp.	131	Man and Cul. World I	4	Sp.	111	Oral Communications	2
Chem.	101	Chemistry I	5 or	Comp.	132	Man and Cult. World II	4
Chem.	110	General Chemistry	5	Chem.	122	Gen. Organic Chemistry	5
		Elective and Option	3			Elective and Option	2
Mil. Sc.	101	Infantry I (Men)	1	Mil. Sc.	102	Infantry II (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
Bot.	102	General Botany	5	Bact.	102	Bacteriology	5
Zoöl.	105	General Zoölogy	5	Ent.	203	Gen. Econ. Entomology	3
		Elective and option	1	Geol.	140	Principles of Geography	3
Mil. Sc.	103	Infantry III (Men)	1	Mil. Sc.	104	Infantry IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
An. Husb.	221	Genetics	3			Elective, option, major	15
		Elective, option, major	12				
Engl.	169	English Proficiency	R				
Total			15	Total			15

SENIOR

First Semester				Second Semester			
		Elective, option, major	15			Elective, option, major	15
Total			15	Total			15

Option:

Bacteriology majors: Math. 101, 104; Chem. 103, 104, 211, and 227; Phys. 102 and 103.

Physiological Botany majors: Math. 101, 104.

Entomology majors: Math. 101, 104.

Physiology: Math. 101, 104.

Clinical Biology: Math. 101, 104.

Medical Technician: Math. 101, 104; Chem. 103, 104, 211, 227; Phys. 102, 103; Bot. 102; Ent. 203; An. Husb. 221 to be omitted.

Majors:

Bacteriology: Bact. 206, 222 or 240, 229, and 13 additional hours.

Botany: Nineteen hours chosen from the 200 group.

Entomology: Twenty hours chosen from the 200 group.

Zoölogy: Nineteen hours chosen from the 200 group.

Curriculum in Business Administration

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Comp.	101	Man's Phys. World I	4	Comp.	102	Man's Phys. World II	4
Econ.	133	Accounting I	3	Econ.	134	Accounting II	3
Math.	108	General Algebra	5	Hist.	105	American Ind. History	3
Mil. Sc.	101	Infantry I (Men)	1			Option*	3
		Physical Education	R	Mil. Sc.	102	Infantry II (Men)	1
						Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Sp.	111	Oral Communications	2	Educ.	184	General Psychology	3
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Econ.	101	Economics I	3	Econ.	104	Economics II	3
Engl.	122	Coml. Correspondence	3			Option*	3
		Option*	3			Elective†	2
Mil. Sc.	103	Infantry III (Men)	1	Mil. Sc.	104	Infantry IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
Econ.	116	Money and Banking	3	Econ.	215	Bus. Org. and Finance	3
Math.	126	Elements of Statistics	3	Hist.	151	American Government	3
		Option*	3			Elective†	5
		Elective†	2				
Engl.	169	English Proficiency	R				
Total			15	Total			15

SENIOR

First Semester				Second Semester			
Econ.	214	Public Finance	3	Econ.	236	Bus. Adm. Summ	2
Hist.	163	Business Law I	3	Hist.	164	Business Law II	3
		Elective†	9			Elective†	10
Total			15	Total			15

* Option 1. Accounting sequence: Math. 150, Mathematics of Finance; Econ. 287, Cost Accounting; Econ. 280, Valuation Accounting; and Econ. 281, Advanced Accounting. Option 2. Business Sequence: Geol. 140, Principles of Geography; Econ. 280, Valuation Accounting; Econ. 151, Sociology; and Econ. 246, Marketing.

† Elective 1. Accounting majors: Econ. 294, Specialized Accounting; Econ. 288, Advanced Cost Accounting; Econ. 289, Government Accounting; Econ. 286, Tax Accounting; nine hours minor courses; nine hours general elective. Elective 2. Business majors: Ten hours of business courses; nine hours of minor courses; nine hours of general elective.

Industrial Chemistry

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Chem.	101	Chemistry I	5	Sp.	111	Oral Communications	2
Math.	101	Plane Trigonometry	3	Chem.	103	Chemistry II Rec	3
Math.	104	College Algebra	3	Chem.	104	Chemistry II Lab	2
Mch. Des.	101	Engineering Drawing	2	Math.	110	Plane Anal. Geometry	4
Mil. Sc.	113	Artillery I (Men)	1	Mod. Lng.	101	German I	3
Chem.	133	Ind. Chem. Seminar	R	Mil. Sc.	114	Artillery II (Men)	1
		Physical Education	R	Chm.	133	Ind. Chem. Seminar	R
						Physical Education	R
Total			16 or 17	Total			16 or 17

SOPHOMORE

First Semester				Second Semester			
Chem.	211	Quant. Analysis A	3	Chem.	212	Quant. Analysis B	3
Lib. Ec.	101	Library Methods	1	Math.	115	Calculus II	4
Math.	114	Calculus I	4	Mod. Lng.	137	Scientific German	4
Mod. Lng.	102	German II	3	Phys.	106	Engineering Physics II	5
Phys.	105	Engineering Physics I	5	Mil. Sc.	116	Artillery IV (Men)	1
Mil. Sc.	115	Artillery III (Men)	1	Chem.	133	Ind. Chem. Seminar	R
Chem.	133	Ind. Chem. Seminar	R			Physical Education	R
		Physical Education	R				
Total			16 or 17	Total			16 or 17

JUNIOR

First Semester				Second Semester			
Chem.	223	Organic Chemistry I	5	Chem.	224	Organic Chemistry II	5
Chem	260	Physical Chemistry I	5	Chem.	261	Phys. Chemistry II Rec	3
Comp.	121	Man and Social World I	4	Chem.	262	Phys. Chemistry II Lab	2
		Elective	3	Comp.	122	Man and Social World II	4
Chem.	133	Ind. Chem. Seminar	R			Elective	3
Engl.	169	English Proficiency	R	Chem.	133	Ind. Chem. Seminar	R
Total			17	Total			17

SENIOR

First Semester				Second Semester			
Chem.	202	Inorganic Prep	2	Chem.	297	History of Chemistry	1
Chem.	207	Adv. Inorganic Chem	3	Chem.	299	Problems in Chemistry	3
Chem.	216	Ind. Chemical Analysis	3	Chm.Engg.	236	Chemical Technology	4
Comp.	111	Biol. in Rel. to Man I	4 or	Comp.	112	Biol. in Rel. to Man II	4
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
		Elective	5			Elective	5
Chem.	132	Inspection Trip	R	Chem.	133	Ind. Chem. Seminar	R
Chem.	133	Ind. Chem. Seminar	R				
Total			17	Total			17

Industrial Journalism

FRESHMAN

First Semester				Second Semester			
Course			*Sem. Hrs.*	*Course*			*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Sp.	111	Oral Communications	2	Comp.	102	Man's Phys. World II	4
Comp.	101	Man's Phys. World I	4	Educ.	184	General Psychology	3
		Modern Language	6			Modern Language	3
Mil. Sc.	101	Infantry I (Men)	1			Option	3
Ind. Jour.	199	Ind. Jour. Lecture	R	Mil. Sc.	102	Infantry II (Men)	1
		Physical Education	R	Ind. Jour.	199	Ind. Jour. Lecture	R
						Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
Ind. Jour.	103	Graphic Arts Survey	2	Ind. Jour.	157	Industrial Writing	3
Ind. Jour.	104	Typography Lab	1			Option	4
Ind. Jour.	150	Elementary Journalism	2	Mil. Sc.	104	Infantry IV (Men)	1
		Option	2	Ind. Jour.	199	Ind. Jour. Lecture	R
Mil. Sc.	103	Infantry III (Men)	1			Physical Education	R
		Ind. Jour. Lecture	R				
		Physical Education	R				
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
Engl.	173	American Literature I	3	Ind. Jour.	162	Radio News	2 or
Ind. Jour.	167	News and Mag. Writing	2	Ind. Jour.	181	Rural Press	2 or
Ind. Jour.	177	Prin. of Advertising	3	Ind. Jour.	183	Pub. Inf. Methods	2
		Option	3	Ind. Jour.	166	Editing	2
Ind. Jour.	199	Ind. Jour. Lecture	R	Ind. Jour.	273	Hist. and Ethics of Jour.	3
Engl.	169	English Proficiency	R			Elective and option	4
				Ind. Jour.	199	Ind. Jour. Lecture	R
Total			15	Total			15

SENIOR

First Semester				Second Semester			
Ind. Jour.	170	Journalism for Women	3 or	Ind. Jour.	255	Contemp. Affairs II	3
Ind. Jour.	228	Advanced Reporting	3			Elective and option	12
Ind. Jour.	253	Contemp. Affairs I	3	Ind. Jour.	199	Ind. Jour. Lecture	R
		English elective	3				
		Elective and option	6				
Ind. Jour.	199	Ind. Jour. Lecture	R				
Total			15	Total			15

Industrial option: Fifteen hours from one of groups 1 to 7 of elective lists.
Social Science option: Six hours from group 8.

Industrial Physics

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Chem.	101	Chemistry I	5	Sp.	111	Oral Comm	2
Lib. Ec.	101	Library Methods	1	Chem.	103	Chemistry II Rec	3
Math.	101	Plane Trigonometry	3	Chem.	104	Chemistry II Lab	2
Math.	104	College Algebra	3	Hist.	105	American Ind. History	3
Mil. Sc.	113	Artillery I (Men)	1	Math.	110	Plane Anal. Geometry	4
Phys.	299	Physics Colloquium	R	Mil. Sc.	114	Artillery II (Men)	1
		Physical Education	R	Phys.	299	Physics Colloquium	R
						Physical Education	R
Total			15 or 16	Total			16 or 17

SOPHOMORE

First Semester				Second Semester			
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Educ.	184	General Psychology	3	Econ.	101	Economics I	3
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Mil. Sc.	115	Artillery III (Men)	1	Mil. Sc.	116	Artillery IV (Men)	1
Phys.	299	Physics Colloquium	R	Phys.	299	Physics Colloquium	R
		Physical Education	R			Physical Education	R
Total			16 or 17	Total			16 or 17

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
Math.	201	Differential Equations	3	Mod. Lng.	102	German II	3
Mod. Lng.	101	German I	3			Physics elective	4
		Physics elective	4			Elective	6
		Elective	3	Phys.	299	Physics Colloquium	R
Phys.	299	Physics Colloquium	R				
Engl.	169	English Proficiency	R				
Total			17	Total			17

SENIOR

First Semester				Second Semester			
Hist	151	American Government	3			Physics elective	7
Mod. Lng.	137	Scientific German	4			Elective	10
		Physics elective	7	Phys.	299	Physics Colloquium	R
		Elective	3				
Phys.	299	Physics Colloquium	R				
Total			17	Total			17

Music, Applied

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Comp.	101	Man's Physical World I	4	Sp.	111	Oral Comm	2
Educ.	184	General Psychology	3	Comp.	102	Man's Physical World II	4
		Music Major	2			Music Major	2
Mus.	125	Theory of Music I	3	Mus.	126	Theory of Music II	3
		Music Minor	R			Music Minor	R
Mus.	185	Ensemble	R	Mus.	185	Ensemble	R
Mil. Sc.	101	Infantry I (Men)	1			Elective	2
		Physical Education	R	Mil. Sc.	102	Infantry II (Men)	1
						Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
		Music Major	2			Music Major	2
Mus.	127	Theory of Music III	3	Mus.	128	Theory of Music IV	3
Mus.	146	Orch. Instrument I	1	Mus.	147	Orch. Instrument II	1
Mus.	130	Hist. and App. of Mus. I	2	Mus.	131	Hist. and App. of Mus. II	2
		Modern Language	3			Modern Language	3
		Music Minor	R			Music Minor	R
Mus.	185	Ensemble	R	Mus.	185	Ensemble	R
Mus.	181	Recital	R	Mus.	181	Recital	R
Mil. Sc.	103	Infantry III (Men)	1	Mil. Sc.	104	Infantry IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
		Music Major	2			Music Major	2
		Music Minor	1			Music Minor	1
Mus.	133	Choral Conducting	1	Mus.	134	Instrumental Conducting	1
Mus.	148	Orch. Instrument III	1	Mus.	150	Orch. Instrument IV	1
Mus.	149	Meth. and Materials for the Studio	1	Mus.	182	Junior Recital	1
Mus.	129	Ctrpt., Form and Analysis	2	Engl.	173	American Literature I	3
		Modern Language	3			Elective	2
Mus.	185	Ensemble	R	Mus.	185	Ensemble	R
Mus.	181	Recital	R				
Engl.	169	English Proficiency	R				
Total			15	Total			15

SENIOR

First Semester				Second Semester			
Engl.	170	English Literature I	3	Hist.	107	Surv. of Civilization II	3
Hist.	106	Surv. of Civilization I	3			Music Major	2
		Music Major	2			Music Minor	1
		Music Minor	1	Mus.	136	Inst. and Orchestration	3
		Elective	6	Mus.	184	Senior Recital	2
Mus.	185	Ensemble	R			Elective	4
Mus.	181	Recital	R	Mus.	185	Ensemble	R
Mus.	187	Prac. Tchg. Appl. Music	R				
Total			15	Total			15

Music Education

FRESHMAN

		First Semester				Second Semester	
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Sp.	111	Oral Comm	2	Comp.	102	Man's Phys. World II	4
Comp.	101	Man's Phys. World I	4	Educ.	184	General Psychology	3
Hist.	106	Surv. of Civilization I	3	Hist.	107	Surv. of Civilization II	3
Mus.	125	Theory of Music I	3	Mus.	126	Theory of Music II	3
Mus.	161	Piano	R	Mus.	156	Voice	R
Mus.	156	Voice	R	Mus.	161	Piano	R
Mus.	176	Piano Ensemble	R	Mus.	176	Piano Ensemble	R
Mus.	185	Ensemble	R	Mus.	185	Ensemble	R
Mil. Sc.	101	Infantry I (Men)	1	Mil. Sc.	102	Infantry II (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

		First Semester				Second Semester	
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Mus.	130	Hist. and App. of Mus. I	2	Engl.	170	English Literature I	3
Mus	127	Theory of Music III	3	Mus.	131	Hist. and App. of Mus. II	2
Mus.	146	Orch. Instrument I	1	Mus.	128	Theory of Music IV	3
		Elective	5	Mus.	147	Orch. Instrument II	1
Mus.	156	Voice	R			Elective	2
Mus.	161	Piano	R	Mus.	156	Voice	R
Mus.	176	Piano Ensemble	R	Mus.	161	Piano	R
Mus.	185	Ensemble	R	Mus.	176	Piano Ensemble	R
Mil. Sc.	103	Infantry III (Men)	1	Mus.	185	Ensemble	R
		Physical Education	R	Mil. Sc.	104	Infantry IV (Men)	1
						Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

		First Semester				Second Semester	
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
Educ.	109	Educational Psychology	3	Engl.	173	American Literature I	3
		Voice or Instrument	2			Voice or Instrument	2
Mus.	148	Orch. Instrument III	1	Mus.	150	Orch. Instrument IV	1
Mus.	144	School Music I	3	Mus.	145	School Music II	2
Mus.	129	Ctrpt., Form and Analysis	2			Education elective	3
Mus.	176	Piano Ensemble	R	Mus.	176	Piano Ensemble	R
Mus.	185	Ensemble	R	Mus.	185	Ensemble	R
Engl.	169	English Proficiency	R				
Total			15	Total			15

SENIOR

		First Semester				Second Semester	
Educ.	129	Teach. Part. in Music	3	Mus.	134	Instr. Conducting	1
Mus.	133	Choral Conducting	1	Mus.	136	Inst. and Orchestration	3
		Voice or Instrument	2			Voice or Instrument	2
		Education elective	3			Education elective	3
		English elective	4			Elective	6
		Elective	2	Mus.	176	Piano Ensemble	R
Mus.	176	Piano Ensemble	R	Mus.	185	Ensemble	R
Mus.	185	Ensemble	R				
Total			15	Total			15

Physical Education (Men)

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Sp.	111	Oral Comm	2	Comp.	102	Man's Phys. World II	4
Comp.	101	Man's Phys. World I	4	Phys. Ed.	143	History of Phys. Ed	2
Educ.	184	Gen. Psychology	3	Phys. Ed.	138	Phys. Ed. Act. II	2
Phys. Ed.	107	Intro. to Phys. Ed	1	Zoöl.	105	General Zoölogy	5
Phys. Ed.	135	Phys. Ed. Activities I	2	Mil. Sc.	102	Infantry II	1
Mil. Sc.	101	Infantry I	1			Physical Education	R
		Physical Education	R				
		Total	16			Total	16

SOPHOMORE

First Semester				Second Semester			
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Phys. Ed.	119	Personal Hygiene	2	Phys. Ed.	147	Community Hygiene	2
Phys. Ed.	145	Nat. and Fun. of Play	2	Phys. Ed.	114	Major Sports I	3
Phys. Ed.	139	Phys. Ed. Activities III	2	Phys. Ed.	132	Kinesiology	2
Zoöl.	123	Human Anatomy	5	Zoöl.	221	Human Physiology	4
Mil. Sc.	103	Infantry III	1	Mil. Sc.	104	Infantry IV	1
		Physical Education	R			Physical Education	R
		Total	16			Total	16

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cul. World I	4	Comp.	132	Man and Cul. World II	4
Educ.	250	Psych. of Child and Adol	3	Phys. Ed.	113	First Aid and Massage	3
Phys. Ed.	146	Org. and Adm. of Phys. Ed	3	Phys. Ed.	149	Teaching Health	2
		Elective	6	Phys. Ed.	120	Swimming	1
Engl.	169	English Proficiency	R	Phys. Ed.	115	Major Sports II	3
						Education elective	3
		Total	16			Total	16

SENIOR

First Semester				Second Semester			
Educ.	109	Educ. Psychology	3	Educ.	163	Tch. Part. in H. S	3
Phys. Ed.	124	Phys. Diag. and Prescrip	3	Phys. Ed.	142	Pub. Sch. Prog. in Phys. Ed	2
Phys. Ed.	134	Pract. Tchg. in Phys. Ed	2	Phys. Ed.	203	Community Recreation	2
		Elective	7			Education elective	3
						Elective	5
		Total	15			Total	15

Physical Education (Women)

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Sp.	111	Oral Comm	2	Comp.	102	Man's Phys. World II	4
Comp.	101	Man's Phys. World I	4	Phys. Ed.	191	Rec. Leadership	2
Ch. Welf.	101	Personal Health	2	Phys. Ed.	157B	Gen. Technic II	2
Phys. Ed.	154	Fund. Rhythms	2	Zoöl.	105	General Zoölogy	5
Phys. Ed.	157A	Gen. Technic I	2			Physical Education	R
		Physical Education	R				
Total			15	Total			15

SOPHOMORE

First Semester				Second Semester			
Phys. Ed.	162	Prin. and Phil. of Phys. Ed.	3	Bot.	110	Nat. and Dev. of Plants	3
Phys. Ed.	177	Plgnd. Mgmt. and Games	3	Educ.	184	General Psychology	3
Phys. Ed.	157C	General Technic III	2	Phys. Ed.	184	Kinesiology	2
Zoöl.	123	Human Anatomy	5	Phys Ed.	157D	Gen. Technic IV	2
		Elective	2	Zoöl.	221	Human Physiology	4
		Physical Education	R			Elective	1
						Physical Education	R
Total			15	Total			15

JUNIOR

First Semester				Second Semester			
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II	4
Educ.	109	Educ. Psychology	3	Phys. Ed.	175	Therap. and Massage	3
Phys. Ed.	179	Health Tchg. in H. S	3	Phys. Ed.	157F	Gen. Technic VI	2
Phys. Ed.	174	Health Examinations	3			Education elective	3
Phys. Ed.	157E	Gen. Technic V	2			Elective	3
Engl.	169	English Proficiency	R			Physical Education	R
		Physical Education	R				
Total			15	Total			15

SENIOR

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Com.	132	Man and Cult. World II	4
Foods and Nutr.	121	Applied Nutrition	2	Educ.	163	Teach. Part in H. S	3
Phys. Ed.	188	Teach. and Adapt. of P. E.	3	Phys Ed.	176	Org. and Adm. of P. E.	2
Phys. Ed.	157G	General Technic VII	2	Phys. Ed.	157H	General Technic VIII	2
		Education elective	3			Education elective	3
		Elective	1			Elective	1
		Physical Education	R			Physical Education	R
Total			15	Total			15

Physical Science

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. 1	3	Engl.	112	Written Comm. II	2
Chem.	101	Chemistry I	5	Sp.	111	Oral Comm	2
Geol.	103	General Geology	3	Chem.	103	Chemistry II Rec	3
Lib. Ec.	101	Library Methods	1	Math.	101	Plane Trigonometry	3
Math.	104	College Algebra	3			Elective	5
Mil. Sc.	113	Artillery I (Men)	1	Mil. Sc.	114	Artillery II (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

SOPHOMORE

First Semester				Second Semester			
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Educ.*	184	General Psychology	3	Econ.*	101	Economics I	3
Math.*	110	Plane Anal. Geometry	4	Math.*	114	Calculus I	4
Phys.	102	General Phys I	4	Phys.	103	General Physics II	4
Mil. Sc.	115	Artillery III (Men)	1	Mil. Sc.	116	Artillery IV (Men)	1
		Physical Education	R			Physical Education	R
Total			15 or 16	Total			15 or 16

JUNIOR

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
		Elective and major	11	Hist.	151	American Government	3
Engl.	169	English Proficiency	R			Elective and major	8
Total			15	Total			15

SENIOR

First Semester		Second Semester	
Elective and major	15	Elective and major	15

* Statistics majors defer Educ. 184 and Econ. 101 and insert Math. 261 and 262. Geology majors replace Math. 110 and 114 by Geol. 203 and 209.

Majors:

Geology: Geol. 110, 215, 220, 230 and seven selected hours.

Mathematics: Math. 115, 201, and six selected hours.

Physics: Phys. 220, 227, 238, 240, 243, 244, 251, 255. Seniors enroll for Phys. 299 for two semesters.

Statistics: Math. 115, 201, 264, 265, and 266.

Chemistry: Chem. 104, 211, 212, 223, 224, 260 and 261.

A nine-hour proficiency in German is urged, but not required.

Preveterinary Year

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Sp.	111	Oral Comm.	2	Chem.	122	Gen. Organic Chem.	5
Chem.	110	General Chemistry	5	Comp.	132	Man and Cult. World II	4
Comp.	131	Man and Cult. World I	4	Zoöl.	105	General Zoölogy	5
		Elective	1 or 2	Mil. Sc.	102	Infantry II (Men)	1
Mil. Sc.	101	Infantry I (Men)	1			Physical Education	R
		Physical Education	R				
Total			15 to 17	Total			16 or 17

Groups of Electives for Students in the School of Arts and Sciences

1. Applied Science

For industrial option in the Curriculum in Industrial Journalism.

Seed Iden. and Weed Cont., Agron. 105	2	Prin. of Geography, Geol. 140	3
Soils, Agron. 130	4	Historical Geology, Geol. 203	4
General Microbiology, Bact. 101	3	Economic Geology, Geol. 207	4
Bact. of Hum. Dis., Bact. 206	5	Cryst. and Min., Geol. 209	4
General Botany, Bot. 102	5	Sedimentary Petrology, Geol. 236	5
Nature and Dev. of Plants, Bot. 110	3	Vert. Paleontology, Geol. 255	3
Fruit Crop Diseases, Bot. 202	2	Micropaleontology, Geol. 256	3
Plant Pathology I, Bot. 205	3	El. of Horticulture, Hort. 107	3
Plant Ecology, Bot. 229	3	Small Fruits, Hort. 109	3
Field Crop Diseases, Bot. 241	3	Land Forestry, Hort. 114	3
Gen. Org. Chemistry, Chem. 122	5	Land Gardening I, Hort. 125	3
Dairy Chemistry, Chem. 275	3	Household Physics, Phys. 109	4
Gen. Entomology, Ent. 101	3	Descriptive Physics, Phys. 136	3
Hort. Entomology, Ent. 201	2	Des. Astronomy, Phys. 141	3
Gen. Economic Ent., Ent. 203	3	Meteorology, Phys. 146	3
Staple Crop Ent., Ent. 206	3	Photography, Phys. 151	2
General Apiculture, Ent. 208	3	General Zoölogy, Zoöl. 105	5
Human Nutrition, Foods and Nutr. 112	3	Animal Parasitology, Zoöl. 208	3
Ap. Nutr., Foods and Nutr. 121	2	Embryology, Zoöl. 219	4
Physiographic Geol., Geol. 110	3	Endocrinology, Zoöl. 247	3

2. Home Economics

For industrial option in the Curriculum in Industrial Journalism.

Elementary Design I, Art 101A	2	Adv. Dress Design, Clo. and Text. 115	3
Costume Design I, Art 130	2	Foods I, Foods and Nutr. 102	5
Principles of Art I, Art. 201	3	App. Nutrition, Foods and Nutr. 121	2
Principles of Art II, Art 202	3	The House, Household Econ. 107	3
Child Guidance I, Child Welf. 201	3	Family Finance, Household Econ. 263	2
The Family, Child Welf. 216	2	Econ. Probs. of the Family, Household Econ. 265	2
Fund. of Clothing, Clo. and Text. 113	2	Consumer Buying, Household Econ. 272,	3
App. Dress Des., Clo. and Text. 114	3		

3. Agriculture

For industrial option in the Curriculum in Industrial Journalism.

Farm Crops, Agron. 101	4	Field Crop Diseases, Bot. 241	3
Soils, Agron. 130	4	Gen. Org. Chemistry, Chem. 122	5
El. of An. Husb., An. Husb. 125	3	El. of Dairy., Dairy Husb. 101	3
Prin. of Feeding, An. Husb. 152	3	Dairy Cattle Judging, Dairy Husb. 105	2
Genetics, An. Husb. 221	3	El. of Horticulture, Hort. 107	3
General Botany, Bot. 102	5	Farm Poultry Prod., Poult. Husb. 101	2
Plant Pathology I, Bot. 205	3		

4. Drawing and Art

For industrial option in the Curriculum in Industrial Journalism.

Freehand Drawing I, Arch. 112	2	Advanced Design, Art 105	2
Freehand Drawing II, Arch. 113	2	Weaving, Art 106	2
Pen. Rend. and Sketch., Arch. 116	2	Pottery, Art 109	2
Still-life Drawing, Arch. 117	2	Interior Decoration I, Art 113	2
Water Color I, Arch. 118	2	Interior Decoration II, Art 115	2
Water Color II, Arch. 119	2	Interior Decoration III, Art 117	2
Life Drawing I, Arch. 121	2	Drawing I, Art 120	2
Life Drawing II, Arch. 123	2	Drawing II, Art 121	2
Domestic Architecture, Arch. 124	2	Lettering, Art 127	2
Apprec. of Arch., Arch. 125	3	Costume Design I, Art 130	2
Clay Modeling, Arch. 133	2	Costume Design II, Art 134	2
Pen and Ink Drawing, Arch. 134	2	Costume Design III, Art 138	2
Block Prints, Arch. 137	2	Principles of Art I, Art 201	3
Commercial Illus. I, Arch. 165	2	Principles of Art II, Art 202	3
Commercial Illus. II, Arch. 170	2	Costume Illustration, Art 212	2
Hist. Paint. and Sculp., Arch. 179	3	Problems in Design, Art 217	Cr. Ar.
Adv. Freehand Drawing, Arch. 201	Cr. Ar.	Probs. in Interior Decoration, Art 232	Cr. Ar.
Etching, Arch. 217	2	Historic Textiles Design, Art 233	2
Oil Painting, Arch. 230	Cr. Ar.	Probs. in Costume Design, Art 235	Cr. Ar.
Elementary Design I, Art 101A	2	Art of the S. W. Indians, Art 242	2
Elementary Design II, Art 101B	2	Arts of Mexico, Art 244	2
Design in Crafts, Art 102	2	Art of Prim. People, Art 246	2
Intermediate Design, Art 103	2		

5. Manual and Industrial Arts

For industrial option in the Curriculum in Industrial Journalism.

Farm Building, Agric. Engg. 101	3	Farm Carpentry, Shop 147	3
Farm Machinery, Agric Engg. 108	3	Forging, Shop 150	1
Gas Eng. and Tract., Agric. Engg. 130	3	Farm Blacksmithing I, Shop 157	1
Surveying I, Civ. Engg. 102	2	Farm Blacksmithing II, Shop 158	1
Engg. Drawing, Mach. Des. 101	2	Foundry Production, Shop 161	1
Des. Geom., Mach. Des. 106	2	Metals and Alloys, Shop 165	2
Mach. Drawing I, Mach. Des. 111	2	Machine Tool Work I, Shop 170	2
Elem. Crafts for Teachers, Shop 118	2	Oxyacetylene Welding, Shop 171	1
Reed Furn. Const., Shop 119	2	Arc Welding, Shop 172	1
Woodwork I, Shop 121	2	Sheet Metal Work, Shop 173	2
Wood and Metal Fin., Shop 122	2	Farm Shop Methods, Shop 175	3
Woodwork II, Shop 126	2	Machine Tool Work II, Shop 192	2
Woodwork III, Shop 131	2	Machine Tool Work III, Shop 193	1
Woodturning, Shop 135	2	Adv. Shop Practice, Shop 261	Cr. Ar.
Woodwork IV, Shop 139	2	Metallography I, Shop 262	1

6. Printing

For industrial option in the Curriculum in Industrial Journalism.

Ad Typog. I, Ind. Jour. 108	2	Job Comp. II, Ind. Jour. 118	2
Ad Typog. II, Ind. Jour. 111	2	Job Comp. III, Ind. Jour. 120	2
Ad Typog. III, Ind. Jour. 112	2	Press Work I, Ind. Jour. 122	2
Job Comp. I, Ind. Jour. 114	2	Press Work II, Ind. Jour. 126	2

7. Radio Broadcasting

For industrial option in the Curriculum in Industrial Journalism.

Radio News, Ind. Jour. 162	2	Broadcasting Inf. Programs, Sp. 163	2
Radio Advertising, Ind. Jour. 179	3	Radio Speech, Sp. 165	2
Broadcasting Station Practice, Ind. Jour. 180	1	Radio Program Participation, Sp. 168	1
Broadcast. Musical Programs, Mus. 119	2	Adv. Phonetics, Sp. 201	4
Hist. and Apprec. of Music I, Mus. 130	2	Radio Program Production, Sp. 231	2
Hist. and Apprec. of Music II, Mus. 131	2	Radio Continuity I, Sp. 243	3
Survey of Broadcasting, Sp. 163	2	Radio Continuity II, Sp. 244	3
		Radio Programming, Sp. 240	2

8. Social Science

For social science option in the Curriculum in Industrial Journalism.

Economics II, Econ. 104	3	Surv. Ameri. Hist. II, Hist. 128	3
Money and Banking, Econ. 116	3	Cont. Govts., Hist. 154	3
Business Management, Econ. 126	2	Business Law I, Hist. 163	3
Economic Systems, Econ. 210	2	Business Law II, Hist. 164	3
Public Finance, Econ. 214	3	Farm Law, Hist. 175	2
Bus. Org. and Finance, Econ. 215	3	Fdns. American Rep., Hist. 201	3
Investments, Econ. 222	3	American Exp. and Sect., Hist. 202	3
Credits and Coll., Econ. 223	2	New American Nation, Hist. 203	3
International Trade, Econ. 224	2	American Agr. History, Hist. 205	2
Prin. of Trans., Econ. 230	3	American Pol. Parties, Hist. 206	2
Labor Economics, Econ. 234	3	Latin America, Hist. 208	3
Property Insurance, Econ. 242	2	World Cultures I, Hist. 209	3
Life Insurance, Econ. 244	2	World Cultures II, Hist. 210	3
Marketing, Econ. 246	3	Modern England, Hist. 211	3
Market Adm., Econ. 247	3	Europe Since 1870, Hist. 212	3
Problems in Economics, Econ. 248	Cr. Ar.	Russia and Soviet Union, Hist. 213	3
Sociology, Econ. 151	3	History of the Home, Hist. 225	3
Social Pathology, Econ. 258	3	British Empire, Hist. 226	2
Com. Org. and Lead, Econ. 267	3	American Dip. History, Hist. 228	2
Adv. Sociology, Econ. 273	3	History of Religions, Hist. 231	2
Hist. Soc. Thought, Econ. 277	3	Far East, Hist. 236	3
Problems in Sociology, Econ. 279	Cr. Ar.	Hist. American Pol Thgt., Hist. 249	3
American Ind. History, Hist. 105	3	Comp. Govt., Hist. 252	2
Surv. West. Civ. I, Hist. 106	3	City Govt., Hist. 253	3
Surv. West. Civ. II, Hist. 107	3	International Law, Hist. 256	2
Cont. World History, Hist. 125	2	Govt. and Business, Hist. 260	2
Current History, Hist. 126	1	Problems in Hist. and Govt., Hist. 270	Cr. Ar.
Surv. Ameri. Hist. I, Hist. 127	3	Land Law, Hist. 276	2

9. Personnel Management

Economics II, Econ. 104	3	Prin. of Guidance, Educ. 230	3
Business Management, Econ. 126	2	Vocational Education, Educ. 241	3
Prin. of Accounting, Econ. 136	3	Mental Tests, Educ. 260	3
Business Org. and Finance, Econ. 215	3	Technic of Mental Tests, Educ. 261	3
Labor Economics, Econ. 234	3	Psych of Adv. and Selling, Educ. 265	3
Social Pathology, Econ. 258	3	Social Psychology, Educ. 270	3
Com. Org. and Lead., Econ. 267	3	Psych of Personnel Mgmt., Educ. 273	3
Advanced Sociology, Econ. 273	3	Prin. and Tech. of Counseling, Educ. 271,	3
Stat. Meth. App. to Educ., Educ. 223	3	Pers. Mgt. Practicum, Educ. 280	Cr. Ar.

10. Social Welfare Work

Personal Health, Child Welf. 101	2	Com. Org. and Lead., Econ. 267	3
Child Guid. I, Child Welf. 201	3	Advanced Sociology, Econ. 273	3
Child Guid. II, Child Welf. 206	3	General Psychology, Educ. 184	3
Family Health, Child Welf. 211	3	Psychology of Childhood and Adoles., Educ. 250	3
The Family, Child Welf. 216	2	Abnormal Psychology, Educ. 254	3
Clo. Select., Clo. and Text. 110	2	Social Psychology, Educ. 270	3
Economics I, Econ. 101	3	Psych. and Pers. Mgmt., Educ. 273	3
Economics II, Econ. 104	3	Foods I, Foods and Nutr. 102	5
Sociology, Econ. 151	3	The House, Household Econ 107	3
Rural Sociology, Econ. 156	3	Home Mgmt., Household Econ. 116	3
Labor Economics, Econ. 234	3	Heredity and Eugenics, Zoöl. 216	2
Social Pathology, Econ. 258	3		

11. Special Business Electives

Investments, Econ. 222	3	Tax Accounting, Econ. 286	3
Credits and Coll., Econ. 223	2	Cost Accounting, Econ. 287	3
International Trade, Econ. 224	2	Adv. Cost Accounting, Econ. 288	2
Prin. of Trans., Econ. 230	3	Govt. Accounting, Econ. 289	2
Labor Economics, Econ. 234	3	Auditing, Econ. 291	3
Property Insurance, Econ. 242	2	C. P. A. Problems, Econ. 292	3
Life Insurance, Econ. 244	2	Spec. Accounting., Econ. 294	3
Problems in Econ., Econ. 248	Cr. Ar.	Psych. of Adv. and Selling, Educ. 265	3
Social Pathology, Econ. 258	3	Writ. and Oral Sales., Engl. 123	3
Pop. and Human Ecology, Econ. 259	2	Adv. Prob. in Coml. Corr., Engl. 223	3
Family and Society, Econ. 260	2	International Law, Hist. 256	2
Com. Org. and Lead., Econ. 267	3	Govt. and Business, Hist. 260	2
Adv. Sociology, Econ. 273	3	Land Law, Hist. 276	2
Hist. Soc. Thought, Econ. 277	3	Prin. of Adv., Ind. Jour. 177	3
Advanced Accounting, Econ. 281	3	Math. of Finance, Math. 150	3

Comprehensive Courses

101. Man's Physical World I. 4 semester hours. Each semester.

102. Man's Physical World II. 4 semester hours. Each semester.
Prerequisite: Comp. 101. These courses cover all the nonliving phases of man's total environment. They are designed to provide students with a brief working knowledge of the subject matter of the physical science fields commonly designated as astronomy, geology, physics, and chemistry. The contributions of physical science and mathematics to the development of western civilizations are frequently ignored in the thinking of educated people. Probably the greatest intellectual achievement of the race has been the invention and perfection of the scientific method. To enable students to appreciate what the scientific method is, and what it has done for us philosophically as well as practically, is the chief objective of these courses. Man's application of the scientific method to the study of the physical factors of his environment has released some of the peoples of the earth from the world of superstition, dogmatism, and drudgery of the past. Americans have been leaders in the machine age, in part because they have understood, controlled and worked with machines rather than being controlled by them. This skill is one of the by-products of the application of the scientific method to daily living. The ultimate goal of these courses is to give a picture of not only the practical and utilitarian achievements of physical science but also its impact on the life of the mind and its repercussion on the social structure. Charge, $4 each semester. Staff.

111. Biology in Relation to Man I. 4 semester hours. Each semester.

112. Biology in Relation to Man II. 4 semester hours. Each semester.
Prerequisite: Comp. 111. Fundamental relationships between plants and animals and other environmental factors. The structure of representative plants and animals, including man, is presented in some detail so that growth, food manufacture and utilization, reproduction, digestion, assimilation, circulation, respiration, and other life processes may be understood and their importance appreciated; also the relationship of structure to heredity and behavior. Principles which govern the classification and identification of various plants and animals are studied. The economic importance, both positive and negative, of plants and animals is considered; the relation of lower plants and animals to food production, food destruction, disease in lower plants and animals, and how these ravages may be controlled; the utilization, propagation, and conservation of plants and animals useful to man; and finally, a detailed study of man himself—his anatomy, functioning, heredity, and future as a member of the community and the nation. Life is interpreted as an integrative process which results in a dynamic whole. Charge, $5 each semester. Staff.

121. Man and the Social World I. 4 semester hours. Each semester.

122. Man and the Social World II. 4 semester hours. Each semester.
Prequisite: Comp. 121. Fundamental characteristics of the society in which man lives. The courses are intended to give an understanding of the part man plays in his relations with his neighbors and the broad relations among the peoples of his nation and the peoples of the world. Attention is called to the constantly changing relations among individuals and the many ways in which these changes affect individuals. The social, economic, and political institutions and practices of America are presented, and the student has an opportunity to compare them with the institutions and practices found in other parts of the world. The courses are intended to develop a keen sense of the responsibilities and duties of a citizen, and a desire to participate actively in the affairs of the community. Charge, $1.50 each semester. Staff.

131. Man and the Cultural World I. 4 semester hours. Each semester.

132. Man and the Cultural World II. 4 semester hours. Each semester.

Prerequisite: Comp. 131. An orientation to the world's cultures, approached from the standpoints of each culture's history, philosophy and religion, literature, music, art, and architecture. Emphasis is laid upon the outstanding phases of western culture and civilization from primitive times until the present day. Primary attention is directed to the following phases of culture: (1) Primitive Phase: Simple culture of the Stone Age, and complex cultures of Egyptians, Babylonians, and ancient Americans; (2) Classical Phase: Cultures of Semites, Persians, Indians, Chinese, Greeks and Romans; (3) Post-Classical or Medieval Phase: Cultures of Europeans, Byzantines, Moslems, Hindus, and Confucians; (4) Modern Phase of European Culture: Developments; Renaissance, Reformation, scientific revolution, baroque art, Age of Reason, Romantic Age, and revolutions; industrial, social, and political; (5) Recent and Contemporary Age of Culture: Industry, invention, and science; world contacts; new knowledge, doctrines, policies, philosophies; developments in literature, art, architecture, etc.; cultural interdependence. Four hours of lecture and two of recitation a week each semester. Charge $1.50 each semester. Staff.

Bacteriology

Professor Bushnell
Professor Gainey
Associate Professor Foltz
Instructor Twiehaus
Instructor Peppler
Instructor Lord
Instructor Harris

For a minor, the following courses or their equivalent: 101, 206, 229 and 222 or 240.

For a major, at least 13 semester hours in bacteriology in addition to the minor.

FOR UNDERGRADUATE CREDIT

101. General Microbiology. 3 semester hours. Each semester and summer.
Prerequisite: Chem. 103 or 110. Morphology, physiology, and biology, classification, culture and distribution of microörganisms; principles of applied microbiology. One hour of recitation and six hours of laboratory a week. Deposit, $8. Staff.

102. Bacteriology. 5 semester hours. Each semester and summer.
Prerequisite: Chem. 103 or 110. General characteristics and methods of cultivation and identification of bacteria and closely related organisms. Three hours of recitation and six hours of laboratory a week. Deposit, $8. Staff.

103. Veterinary Microbiology. 3 semester hours. First semester.
Prerequisite: Chem. 243. Morphology, physiology, biology, and classification of microörganisms; cultural and staining technic; microbiology in dairy sanitation and inspection. One hour of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

105. Agricultural Microbiology. 3 semester hours. Each semester.
Prerequisite: Chem. 103. For students in the School of Agriculture. Students who expect to take Bact. 202 or 212 should take Bact. 101 or equivalent. Sterilization and disinfection; microbial analyses of water, milk, and soil. Two hours of recitation and three hours of laboratory a week. Deposit, $4. Staff.

112. Pathogenic Bacteriology and Virology. 4 semester hours. Second semester.
Prerequisite: Bact. 103. Continuation of Bact. 103. Microörganisms and viruses which cause infectious diseases of domesticated animals. Two hours of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

117. Veterinary Immunology. 3 semester hours. First semester.
Prerequisite: Bact. 112. Principles of immunology; preparation of antisera, antigens, and vaccines; serodiagnosis of infectious diseases. One hour of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

126. Water and Sewage Bacteriology. 3 semester hours. First semester.
Prerequisite: Chem. 108. Water purification, analyses of water supplies, role of microörganisms in sewage disposal. One hour of recitation and six hours of laboratory a week. Deposit, $5. Gainey.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Soil Microbiology. 3 semester hours. Second semester.
Prerequisite: Bact. 101 or 102. Microbial population of the soil and its role in soil fertility. Gainey.

204. Soil Microbiology Laboratory. 2 semester hours. Second semester.
Prerequisite: Bact. 202 or concurrent registration. Laboratory experiments illustrative of theories developed in Bact. 202. Six hours of laboratory a week. Deposit, $8. Gainey.

206. Bacteriology of Human Diseases. 5 semester hours. First semester.
Prerequisite: Bact. 101 or 102. Pathogenic bacteria and their role in human diseases. Three hours of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

212. Dairy Bacteriology. 3 semester hours. Second semester.
Prerequisite: Bact. 101, 102, or 103. Bacteriology of milk and milk products. Foltz.

213. Dairy Bacteriology Laboratory. 2 semester hours. Second semester.
Prerequisite: Bact. 212 or concurrent registration. Laboratory experiments illustrative of theories developed in Bacteriology 212. Six hours of laboratory a week. Deposit, $8. Foltz.

217. Poultry Diseases. 2 semester hours. Second semester.
Prerequisite: Bact. 112. Anatomy of domestic fowls; poultry sanitation and hygiene; infectious and noninfectious diseases of fowls; parasites; minor surgery. Bushnell, Twiehaus.

218. Poultry sanitation. 3 semester hours. Second semester.
Prerequisite: Bact. 101, 102, or 105. Methods of control of poultry diseases. Two hours of recitation and three hours of laboratory a week. Deposit, $3. Bushnell.

222. Physiology of Microörganisms. 3 semester hours. First semester.
Prerequisite: Bact. 101 or 102 and Chem. 122. Chemistry and physics of microbial processes. Harris.

225. Bacteriological Technic. 3 semester hours. First semester.
Prerequisite: Bact. 101 or 102. Technic of laboratory manipulations; fundamental experiments and special experiments selected according to the interest of the student. Nine hours of laboratory a week. Deposit, $5 Gainey.

229. Immunology. 5 semester hours. Second semester.
Prerequisite: Bact. 206. Principles of immunology; preparation, purification and standardization of biological products employed in human and veterinary medicine. Three hours of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

240. Determinative Bacteriology. 3 semester hours. First semester.
Prerequisite: Bact. 101 or 102. Isolation and identification of unknown bacteria. One hour of recitation and six hours of laboratory a week. Deposit, $8. Bushnell, Foltz.

244. Microbial Fermentations. 2 semester hours. Second semester.
Prerequisite: Bact. 101 or 102. Microbiology and chemistry of fermentation processes. Harris.

245. Food and Sanitary Bacteriology. 3 semester hours. First semester.
Prerequisite: Bact. 101 or 102. Bacteriology of foods and food processing. Foltz, Harris.

246. Food and Sanitary Bacteriology Laboratory. 2 semester hours. First semester.
Prerequisite: Bact. 245 or concurrent registration. Bacteriological analysis of foods; microörganisms in food spoilage and fermentation. Six hours of laboratory a week. Deposit, $8. Foltz, Harris.

270. Problems in Bacteriology. Credit to be arranged. Each semester and summer.
Prerequisite: Bact. 101 or equivalent. Work is offered in:

Dairy. Foltz.
Foods. Foltz.
Poultry diseases. Bushnell.
Soils. Gainey.
Physiology. Harris.

Deposit, $3 a credit hour. Staff.

275. Bacteriology Seminar. 1 semester hour. Each semester.
Prerequisite: Consult instructor in charge. Bushnell.

FOR GRADUATE CREDIT

301. Research in Bacteriology. Credit to be arranged. Each semester and summer.
Prerequisite: A minor or equivalent in this department.
Work is offered in:

Dairy. Foltz.
Foods. Foltz.
Poultry Diseases. Bushnell.
Soils. Gainey.
Physiology. Harris.

Deposit, $3 a credit hour. Staff.

Botany and Plant Pathology

Professor Melchers
Professor Miller
Professor Haymaker
Professor Gates
Associate Professor Elmer
Associate Professor Newcomb
Assistant Professor Frazier
Assistant Professor Kingsley
Assistant Professor Bates
Assistant Professor Hansing

For a minor, the following courses should be completed: Nine credit hours of courses in the 200 group, in addition to 102.
For a major, in addition to the minor, the following courses should be completed: Ten or more credit hours in the 200 group, subsequent to the minor courses.

FOR UNDERGRADUATE CREDIT

102. General Botany. 5 semester hours. Each semester and summer.
Plant groups and their evolutionary development. Physiology, anatomy, ecology, and identification of seed plants. Economic applications. Three hours of recitation and six hours of laboratory a week. Charge, $5. Staff.

110. Nature and Development of Plants. 3 semester hours. Second semester and summer.

Structure, life processes, identification, classification, evolutionary development, geographical distribution, and economic importance of plants. Not open to students who have credit in Bot. 102. Charge, $2. Haymaker.

126. Medical Botany. 2 semester hours. First semester.
Stock-poisoning plants of the range; habitat, poisonous properties, and methods of control and elimination of native poisonous plants. One hour of recitation and three hours of laboratory a week. Prerequisite: High-school botany or equivalent. Charge, $2. Gates.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Fruit Crop Diseases. 2 semester hours. First semester.
Diseases of major and minor fruit crops; cause, effect on host, control. One hour of recitation and three hours of laboratory a week. Prerequisite: Bot. 205. Charge, $2. Haymaker.

205. Plant Pathology I. 3 semester hours. First semester and summer.
Important diseases of crops and the organisms which cause them. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 102. Charge, $3. Staff.

206. Morphology of the Fungi. 3 semester hours. First semester.
Structure of slime molds, moldlike bacteria, and fungi studied to determine taxonomic relationships. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 102. Hansing.

208. Plant Physiology I. 3 semester hours. First semester.
The plant cell, solutions and membranes in relation to the cell, root systems, intake of water, intake of solutes, elements used, and loss of water. Prerequisite: Bot. 102 and Chem. 103. Frazier.

210. Plant Physiology II. 3 semester hours. Second semester.
Methods used to obtain data which concern common functions of plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 208. Charge, $5. Frazier.

211. Plant Physiology III. 3 semester hours. Second semester.
Continuation of Bot. 208, including photosynthesis, nitrogen metabolism, fat metabolism, digestion, translocation, respiration, and growth. Prerequisite: Bot. 208. Frazier.

217. Botanical Microtechnic. 3 semester hours. Second semester.
Preparation of plant materials for histological or cytological study. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 102. Charge, $3. Bates.

218. Field Botany. 3 semester hours. Summer.
Identification and classification of seed plants. Two hours of recitation and three hours of laboratory a week. Prerequisite: Bot. 102. Charge, $2. Haymaker.

220. Botany Seminar. 1 semester hour. Each semester.
Reports of investigational work or other matters of interest in the various branches of botany. Prerequisites: Consult head of department.

225. Taxonomic Botany of the Flowering Plants. 3 semester hours. First semester.
Systems of classification; identification of plants in the field and in the laboratory; orders and families of plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 102. Charge, $2. Gates.

229. Plant Ecology. 3 semester hours. Second semester.
Structure and dynamics of vegetation. Field trips. Prerequisite: Bot. 102. Gates.

232. Problems in Botany. Credit to be arranged. Each semester and summer. Prerequisite: Bot. 102 and consent of instructor. Deposit, $5. Staff. Work is offered in:

Anatomy. Newcomb.
Cytogenetics. Newcomb.
Cytology. Newcomb.
Ecology. Gates.
Microtechnic. Bates.
Morphology. Kingsley.
Mycology. Hansing.
Pathology. Melchers, Haymaker, Elmer, Hansing.
Physiology. Frazier.
Taxonomy. Gates.

241. Field Crop Diseases. 3 semester hours. Second semester.
Diseases of cereal and forage crops; cause, effect on host, control. Breeding for disease resistance. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 205. Charge, $2. Melchers.

251. Anatomy of Higher Plants. 3 semester hours. Second semester.
Structure and development of the various tissues and organs of seed plants. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 102. Charge, $3. Newcomb.

266. Literature of Botany. 2 semester hours. First semester.
Current botanical publications, together with the classics of botanical literature; historical development of botany. Prerequisite: Bot. 205. Staff.

268. Plant Cytology. 3 semester hours. First semester.
Structure, development, and functions of the plant cell, with special reference to chromosome behavior and its bearing on genetic results. One hour of recitation and six hours of laboratory a week. Prerequisite: Bot. 102 or Zoöl. 105. Charge, $3. Newcomb.

270. Recent Advances in Cytogenetics. 3 semester hours. Second semester.
Chromosome structure, mechanics, and behavior; their significance for problems of genetics, evolution, and the origin of species. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 208 or Bot. 268 or Zoöl. 214. Charge, $3. Newcomb.

272. Botany for Medical Technicians. 2 semester hours. Second semester.
Plants and plant parts concerned with hay fever, allergy, dermatitis, and mycosis. One hour of recitation and three hours of laboratory a week. Prerequisite: Junior standing. Charge, $3. Gates.

FOR GRADUATE CREDIT

310. Research in Botany. Credit to be arranged. Each semester and summer. Prerequisite: At least two courses in this department. Staff. Work is offered in:

Anatomy. Newcomb.
Cytogenetics. Newcomb.
Cytology. Newcomb.
Ecology. Gates.
Microtechnic. Bates.
Morphology. Kingsley.
Mycology. Hansing.
Pathology. Melchers, Haymaker, Elmer, Hansing.
Physiology. Frazier.
Taxonomy. Gates.

Chemistry

Professor King
Professor Hughes
Professor Brubaker
Professor Colver
Professor Perkins
Professor Barham
Associate Professor Van Winkle
Associate Professor Lash
Associate Professor Conrad
Assistant Professor Hall
Assistant Professor Harriss
Assistant Professor Whitnah
Assistant Professor Marlow
Assistant Professor Smits
Assistant Professor Shenk
Assistant Professor Andrews
Assistant Professor Silker
Instructor McDowell
Instructor Dorf
Instructor Allen
Instructor Lanning
Instructor Hall

For a minor, the following courses should be completed: 101, 103, 104, 227, and 211 or 212.

For a major, the student should enroll in the Curriculum in Industrial Chemistry.

FOR UNDERGRADUATE CREDIT

101. Chemistry I. 5 semester hours. Each semester and summer.
Beginning of the study of general chemistry. Three hours of recitation and six hours of laboratory a week. Not open to students who have credit in Chem. 107, 108, or 110. Deposit, $10. Staff.

103. Chemistry II Recitation. 3 semester hours. Each semester and summer.
Completion of the study of general chemistry. Not open to students who have credit in Chem. 108 or 110. Prerequisite: Chem. 101. Staff.

104. Chemistry II Laboratory. 2 semester hours. Each semester and summer.
General principles of qualitative analysis. Six hours of laboratory a week. Not open to students who have credit in Chem. 108. Prerequisite: Chem. 103 or concurrent registration. Deposit, $10. Staff.

107. Chemistry E-I. 4 semester hours. Each semester and summer.
Similar content to Chem. 101, with special emphasis on applications to engineering. Three hours of recitation and three hours of laboratory a week. Not open to students who have credit in Chem. 101. Deposit, $7.50. Staff.

108. Chemistry E-II. 4 semester hours. Each semester and summer.
Continuation of Chem. 107. Three hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 101 or 107. Not open to students who have credit in Chem. 103 and 104. Deposit, $7.50. Staff.

110. General Chemistry. 5 semester hours. Each semester.
Principal laws and theories of chemistry; important metallic and nonmetallic substances. Three hours of recitation and six hours of laboratory a week. Not open to students who have credit in any college courses in inorganic chemistry. Deposit, $10. Staff.

122. General Organic Chemistry. 5 semester hours. Each semester and summer.
General study of some of the more important classes of organic compounds. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 110. Deposit, $10. Staff.

125. Organic Chemistry (Agr.). 3 semester hours. Each semester and summer.
Fundamentals of organic chemistry, particularly fats, proteins, and carbohydrates. Prerequisite: Chem. 103. Staff.

132. Inspection Trip. R credit. First semester.
Such manufacturing centers as Kansas City, St. Louis, and Chicago are visited. Cost varies from $30 to $50. Staff.

133. Industrial Chemistry Seminar. R credit. Each semester.
Special topics for undergraduates in the Curriculum in Industrial Chemistry. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Inorganic Preparations. Credit to be arranged; one credit for each three hours of laboratory. Each semester and summer.

Preparation and purification of some typical inorganic compounds, of those of more complex composition, and compounds of the rarer elements. Prerequisites: Chem. 104. Deposit, $10. Brubaker.

207. Advanced Inorganic Chemistry. 3 semester hours. First semester.

Facts of chemistry and their present theoretical interpretations; properties of elements as a basis for methods of classification; rarer elements and compounds. Students who elect this course are advised to take Chem. 202. Prerequisite: Chem. 104. Lash.

209. Selected Topics in Inorganic Chemistry. 2 semester hours. Second semester.

Thermal analysis, temperature measurements, atomic hydrogen, hydrides, halogens, solutions, ammonia systems, and crystal chemistry. Prerequisite: Chem. 260. Staff.

211. Quantitative Analysis A. 3 semester hours. First semester and summer.

General procedure of gravimetric analysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Deposit, $10. Brubaker.

212. Quantitative Analysis B. 3 semester hours. Second semester and summer.

General procedure of volumetric analysis. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Deposit, $10. Brubaker.

214. Advanced Quantitative Analysis. 1 to 5 hours.

Prerequisite: Chem. 211 and 212. Deposit, $10. Brubaker.

215. Quantitative Analysis. Credit to be arranged. Second semester and summer.

One hour of recitation and variable laboratory a week. Prerequisite: Chem. 104. Deposit, $10. Brubaker.

216. Industrial Chemical Analysis. 3 semester hours. First semester.

One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 212. Deposit, $10. Brubaker.

218. Gas Analysis. 1 semester hour. First semester.

Analysis of air, flue and furnace gases, and illuminating gas. Three hours of laboratory a week. Prerequisite: Chem. 215 or 211 and 212. Deposit, $7.50.

220. Advanced Qualitative Analysis. 3 semester hours. Each semester.

One hour of recitation and six of laboratory a week. Prerequisite: Chem. 104. Deposit, $10. Van Winkle.

221. Food Analysis. 3 semester hours. Second semester and summer.

Quantitative methods employed in the analysis of foodstuffs, practice in testing for adulterants, preservatives, and coloring materials. Nine hours of laboratory a week. Prerequisite: Chem. 227, and 215 or 212. Deposit, $10. Brubaker.

222. Instrumental Methods in Chemical Analysis. 3 semester hours.

Application of the spectrograph, spectrophotometer, colorimeter, nephelometer, refractometer, X-ray equipment, and other instruments in the chemical analysis of gases, liquids, and solids. Two hours of recitation and three hours of laboratory a week. Prerequisites: Chem. 260. Deposit, $7.50. Shenk.

223. Organic Chemistry I. 5 semester hours. First semester.

Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 104. Deposit, $10. Colver, Dorf.

224. Organic Chemistry II. 4 semester hours. Second semester.
Two hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 223. Deposit, $10. Colver, Dorf.

227. Organic Chemistry. 5 semester hours. Each semester and summer.
Topics selected from the content of Chem. 223 and 224. Three hours of recitation and six hours of laboratary a week. Prerequisite: Chem. 104. Deposit, $10. Colver.

228. Qualitative Organic Analysis. 3 semester hours. First semester.
One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 224. Deposit, $10. Colver.

229. Quantitative Organic Analysis. 2 semester hours. Each semester and summer.
Combustion analysis of organic compounds for carbon, hydrogen, and nitrogen; halogen and sulfur determination by the Carius method. Six hours of laboratory a week. Prerequisite: Chem. 211 and 212 and 224. Deposit, $10. Silker.

230. Organic Preparations. 1 to 5 hours. First semester.
Prerequisite: Chem. 224. Deposit, $10. Colver.

232. Stereoisometric and Tautomeric Compounds. 2 semester hours. Second semester.
Prerequisite: Chem. 224. Colver.

233. Carbocyclic and Heterocyclic Compounds. 2 semester hours. Second semester.
Prerequisite: Chem. 224. Colver.

235. Chemistry of Carbohydrates. 2 semester hours. First or second semester.
Prerequisite: Chem. 122. Whitnah.

237. Special Reactions of Organic Compounds. 2 semester hours. First semester.
Prerequisite: Chem. 224. Colver.

238. Catalysis in Organic Chemistry. 3 semester hours. First semester.
Prerequisite: Chem. 260 and 224. Barham.

239. Special Topics in Organic Chemistry. 2 semester hours. Each semester and summer.
Lectures with assigned reading which deal with special phases of organic chemistry. Prerequisite: Chem. 224. Colver, Barham, Silker.

240. Biochemistry. 5 semester hours. Each semester and summer.
Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 122. Deposit, $10. Hughes, Marlow.

241. Principles of Animal Nutrition. 3 semester hours. Second semester.
Prerequisite: Chem. 122. Hughes.

242. Laboratory Technic in Animal Nutrition. 2 semester hours. Each semester.
Preparation of diet and the care of experimental animals used in the study of various nutritional problems. Six hours of laboratory a week. Prerequisite: An acceptable course in nutrition or Chem. 240. Deposit, $10. Hughes.

243. Physiological Chemistry. 3 semester hours. First semester.
For students in veterinary medicine. Prerequisite: Chem. 122. Hughes.

244. Vitamins. 2 semester hours. First or second semester.
Chemistry and functions of vitamins and related compounds. Prerequisite: Chem. 240. Hughes.

245. Vitamin Analysis. 2 semester hours. Each semester and summer.
Chemical and biological determination of vitamins. Six hours of laboratory a week. Prerequisite: Chem. 240 and 212. Deposit, $10.

247. Biochemical Preparations. 2 to 5 hours. Second semester.
Prerequisite: Chem. 240 and 224. Deposit, $10. Marlow.

248. Biochemical Analysis. 2 semester hours. Each semester.
Six hours of laboratory a week. Prerequisite: Chem. 240 and 212. Deposit, $10. Marlow.

250. Pathological Chemistry. 2 semester hours.
Prerequisite: Chem. 240. Hughes.

252. Chemistry of Proteins. 3 semester hours. First semester.
Prerequisite: Chem. 122 and 260. Conrad.

254. Intermediary Metabolism of Proteins. 2 semester hours. First semester.
Prerequisite: Chem. 240. Hughes.

255. Intermediary Metabolism of Carbohydrates and Lipins. 2 semester hours. Second semester.
Prerequisite: Chem. 240. Marlow.

257. Biochemistry of Internal Secretions. 2 semester hours. First or second semester.
Chemistry of the glands of internal secretions. Prerequisite: Chem. 240. Marlow.

259. Food Technology. 3 semester hours. First semester.
Chemical composition, production, consumption, statistics, and treatment of food material. Prerequisite: Chem. 122 or 125 or 227 or 223. Smits.

260. Physical Chemistry I. 5 semester hours. First semester.
Relations with matter in the gaseous, liquid and solid states; elementary principles of thermodynamics, solution phenomena, colloids, surface chemistry, and thermochemistry. Three hours of recitation and six hours of laboratory a week. Prerequisite: Chem. 211 and 212 or 215, and Math. 115. Students from other schools may enroll without Math. 115. Deposit, $10. Hall, Shenk, McDowell.

261. Physical Chemistry II Recitation. 3 semester hours. Second semester.
Homogeneous and heterogeneous equilibria, chemical kinetics, electrical conductance, electromotive force, chemical thermodynamics, photochemistry, and atomic and molecular structure. Prerequisite: Chem. 260. King, Shenk, McDowell.

262. Physical Chemistry II Laboratory. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Chem. 261 or concurrent registration. Deposit, $10. Shenk.

264. Advanced Physical Chemistry I. 3 semester hours. First semester.
Extension of certain topics of physical chemistry such as thermodynamics, chemical kinetics, photochemistry, atomic and molecular structure. Prerequisite: 261 or consent of instructor. Andrews.

265. Advanced Physical Chemistry II. 3 semester hours. Second semester.
Continuation of Chem. 264. Prerequisite: Chem. 261 or consent of instructor. Andrews.

266. Advanced Physical Chemistry III. 3 semester hours. First or second semester.
Continuation of Chem. 264. Prerequisite: Chem. 261 or consent of instructor. Andrews.

268. Colloid Chemistry. 2 semester hours. Second semester.
Suspensoids and emulsoids, optical and electrical properties of colloids,

Brownian movement, action of electrolytes on colloids, adsorption and surface phenomena, and short review of the methods for the preparation of colloids. Prerequisites: Chem. 260. King.

270. Chemical Thermodynamics I. 3 semester hours. Second semester.
Thermodynamics particularly applicable to chemistry, the first and second laws of thermodynamics and their application. Prerequisite: Chem. 260 and Math. 115. Andrews.

271. Chemical Thermodynamics II. 3 semester hours. Second semester.
Prerequisite: Chem. 270. Andrews.

273. Surface Tension and Related Phenomena. 2 semester hours. Each semester.
Methods of measuring surface tension; surface energetics, relation of surface tension to adsorption; and colloidal formation. Prerequisite: Chem. 260. King, Andrews.

275. Dairy Chemistry. 2 semester hours. First semester.
Prerequisite: Chem. 125 and 212. Whitnah.

277. Chemistry of Soils and Fertilizers. 2 semester hours. First semester.
Six hours of laboratory a week. Prerequisite: Chem. 211. Deposit, $10. Perkins.

279. Advanced Soil Chemistry. 3 semester hours. Each semester.
Chemical phenomena of soils, ionic exchange, electrodialysis, solutions, and colloid phenomena. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 260 and an acceptable course in soils. Deposit, $10. Perkins.

281. Chemistry of Crops. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Chem. 125 and 211. Deposit, $10. Perkins.

283. Insecticides and Fungicides. 2 semester hours.
Prerequisite: Chem. 125 and 211. Smits.

285. Chemical Microscopy. 1 semester hour. Each semester and summer.
Use of the microscope in chemical analysis, both qualitative and quantitative, applied both to inorganic substances and to vegetable and animal products. Three hours of laboratory a week. Prerequisite: Chem. 122 and 211. Deposit, $7.50. McDowell.

287. Paint Oils and Pigments. 2 semester hours. First semester.
Extraction, purification, and properties of the oils commonly used in paints; manufacture and properties of paint pigments; products employed as protective coverings for both wood and metal. Prerequisite: Chem. 104 and 122. Olsen.

290. Corrosion. 3 semester hours. Each semester.
Theories and various factors involved in the corrosion of iron, steel, and nonferrous metals; methods of testing for and preventing corrosion. Prerequisite: Chem. 223 and 260 or concurrent registration. Van Winkle.

292. Chemical Toxicology. 3 semester hours. Each semester and summer.
Occurrence, chemical properties, and detection of the more common poisons. Two hours of recitation and three hours of laboratory a week. Prerequisite: Chem. 122, 227, or 224. Deposit, $7.50. Smits.

296. Chemistry Seminar. R credit. Each semester. Staff.

297. History of Chemistry. 1 semester hour. Second semester.
Development of the principal laws and theories of chemistry; failures and triumphs of the founders of chemical science. Prerequisite: Chem. 260. Lash.

298. Chemical Literature. 2 semester hours. Each semester. Prerequisite: Chem. 224. McDowell.

299. Problems in Chemistry. Credit to be arranged. Each semester and summer. Deposit, $10. Staff.
Work is offered in:

Agricultural Chemistry.
Analytical Chemistry.
Biochemistry.
Chemical Utilization of Farm Products.
Food Chemistry.
General and Physical Chemistry.
Industrial Chemistry.
Organic Chemistry.

FOR GRADUATE CREDIT

301. Research in Chemistry. Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:

Agricultural Chemistry.
Analytical Chemistry.
Biochemistry.
Chemical Utilization of Farm Products.
Food Chemistry.
General and Physical Chemistry.
Industrial Chemistry.
Organic Chemistry.

309. Hormone Preparation and Assay. 2 semester hours. Each semester. Six hours of laboratary a week. Prerequisite: Chem. 257 or Zoöl 247 or concurrent registration. Deposit, $10. Marlow.

311. Chemistry of Enzymes. 3 semester hours. Second semester. Extraction, purification, and action of enzymes. One hour of recitation and six hours of laboratory a week. Prerequisite: Chem. 224 or 227. Deposit, $10. Hall.

Economics and Sociology

Professor Grimes
Professor Farrell
Professor Howe
Professor Hill
Professor Stewart
Professor Holtz
Professor Hodges
Professor Montgomery
Associate Professor Thompson
Assistant Professor Pine
Assistant Professor Doll
Assistant Professor Wilson
Assistant Professor Bagley
Assistant Professor Letbetter
Assistant Professor Gellein
Assistant Professor Otto
Assistant Professor Long

Work in economics and sociology is offered in the schools of Arts and Sciences and Agriculture. The general courses are listed here. Those which have a direct bearing on agriculture are listed in the agricultural section of the catalogue.

Certificate of Certified Public Accountant

By act of the Kansas legislature, passed March 24, 1915, provision is made for the examination for the certificate of Certified Public Accountant. A candidate, in order to be admitted to the examination, must have completed 60 semester hours of college work, or in lieu thereof submit evidence of the completion of five years of public accounting experience approved by the Board of Examiners, in addition to the completion of a four-year high-school course or its equivalent.

The examination is given in auditing, accounting, and business law, and is held in May and November of each year. The questions are supplied by the American Institute of Accountants.

A candidate who passes the examination must furnish evidence of having had three years of public accounting experience satisfactory to the Board of Examiners before the certificate is granted.

COURSES IN ECONOMICS

FOR UNDERGRADUATE CREDIT

(For Econ. 106, see agricultural section.)

101. Economics I. 3 semester hours. Each semester and summer.
Introductory study of the principles of economics. Staff.

104. Economics II. 3 semester hours. Each semester and summer.
Continuation of Econ. 101. Prerequisite: Econ. 101. Staff.

116. Money and Banking. 3 semester hours. Each semester and summer.
Nature, history, and functions of money; banking in its modern and historic forms. Prerequisite: Econ. 101. Thompson.

126. Business Management. 2 semester hours. Each semester and summer.
Analysis of management factors such as personnel, finance, accounting, production, and marketing. Not open to students in curriculum in Business Administration. Prerequisite: Econ. 101. Thompson.

FOR GRADUATE AND UNDERGRADUATE CREDIT

(For Econ. 202, 203, 206A, 211, 212, 215, 218, 225, 226, 227, 231, 235, 240, 251, 270, and 271, see agricultural section.)

210. Economic Systems. 2 semester hours. First semester and summer.
Prerequisite: Econ. 101. Thompson.

214. Public Finance. 3 semester hours. First semester.
Public expenditures and revenues; administration of public funds. Prerequisite: Econ. 101. Howe.

215. Business Organization and Finance. 3 semester hours. Each semester.
Organization and classification of business enterprises, their financial structure and internal management. Prerequisite: Econ. 116 and 134 or 136. Thompson.

222. Investments. 3 semester hours. First semester and summer.
Types of investment securities; investment risks and values; investment banks; investment policies. Prerequisite: Econ. 134 or 136 and 215. Stewart.

223. Credits and Collections. 2 semester hours. Second semester.
Prerequisite: Econ. 101. Thompson.

224. International Trade. 2 semester hours. Second semester.
Prerequisite: Econ. 101.

230. Principles of Transportation. 3 semester hours. Second semester.
Development of transportation; principles involved; public regulation. Prerequisite: Econ. 101.

234. Labor Economics. 3 semester hours. Each semester.
Status and trends in industrial relations. Prerequisite: Econ. 101 or 151. Holtz.

236. Business Administration Summary. 2 semester hours. Each semester.
Summarization and correlation of courses pursued in college; problems requiring application of principles and broad understanding of the field; contemporary economic developments. Prerequisite: Senior standing. Staff.

242. Property Insurance. 2 semester hours. First semester and summer.
Fire, marine, automobile, title, credit insurance, and corporate bonding; also other forms of property insurance. Prerequisite: Econ. 101. Stewart.

244. Life Insurance. 2 semester hours. Second semester and summer.
Nature and uses of life insurance, kinds of policies, determination of premiums, reserves, surrender values, and dividends. Prerequisite: Econ. 101. Stewart.

246. Marketing. 3 semester hours. First semester and summer.
Marketing functions, services, and agencies. Prerequisite: Econ. 101.

247. Market Administration. 3 semester hours. Second semester.
Problem approach to management aspects of market control. Prerequisite: Econ. 246.

248. Problems in Economics. Credit to be arranged. Each semester and summer.
Work is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, accounting, marketing, and public finance. Prerequisite: Senior standing. Staff.

FOR GRADUATE CREDIT

(For Econ. 301, see agricultural section.)

302. Research in Economics. Credit to be arranged. Each semester and summer.
Work is offered in banking, finance, business organization and management, general economics, international trade, insurance, investments, accounting, marketing, and public finance. Prerequisite: At least two courses in this department. Staff.

305. Advanced Economics. 3 semester hours. First semester.
Advanced study of economic theory. Prerequisite: Econ. 101.

310. History of Economic Thought. 3 semester hours. Second semester.
Development of economics and relation of economic doctrines to conditions existing when they were formulated. Prerequisite: Econ. 101. Grimes.

COURSES IN SOCIOLOGY

FOR UNDERGRADUATE CREDIT

(For Econ. 156, see agricultural section.)

151. Sociology. 3 semester hours. Each semester and summer.
Fundamental principles of social life as related to other scientific principles. Prerequisite: Sophomore standing. Hill, Long.

FOR GRADUATE AND UNDERGRADUATE CREDIT

(For Econ. 256, see agricultural section.)

258. Social Pathology. 3 semester hours. Each semester and summer.
Problems of society, poverty, crime, delinquency, immigration, family discord, group conflict, and population. Prerequisite: Econ. 151. Long, Hill.

259. Population and Human Ecology. 2 semester hours. First semester.
Early theories, policies, growth, composition, spatial aspects, movements, and population trends. Prerequisite: Six hours of sociology or economics or history. Hill.

260. Family and Society. 2 semester hours. Second semester.
Origin and development of marriage customs and systems of family organizations; the family under present conditions. Prerequisite: Econ. 151. Hill.

267. Community Organization and Leadership. 3 semester hours. Second semester and summer.
Organizations working in urban and rural fields; principles involved and technic of organization. Prerequisite: Econ. 151. Hill.

273. Advanced Sociology. 3 semester hours. Second semester.
Continuation of Econ. 151. Prerequisite: Econ. 151. Hill.

277. History of Social Thought. 3 semester hours. First semester.
Development of social thought from ancient civilization to the present. Prerequisite: Econ. 151. Holtz.

279. Problems in Sociology. Credit to be arranged. Each semester and summer.
Prerequisite: Econ. 151. Hill.

FOR GRADUATE CREDIT

(For Econ. 256, see agricultural section.)

351. Research in Sociology. Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in sociology. Hill.

COURSES IN ACCOUNTING

FOR UNDERGRADUATE CREDIT

(For Econ. 112, see agricultural section.)

133. Accounting I. 3 semester hours. Each semester and summer.
Principles and structure of accounts designed to give power to analyze commercial accounts and statements; problems and practice sets used as an application of principles to practice. Two hours of recitation and three hours of laboratory a week. Staff.

134. Accounting II. 3 semester hours. Each semester and summer.
Partnership and corporation accounting and problems; valuation of balance-sheet items, with special reference to depreciation, inventories, and intangibles. Two hours of recitation and three hours of laboratory a week. Prerequisite: Econ. 133. Staff.

136. Principles of Accounting. 3 semester hours. Each semester.
Principles of accounting; use of accounting records and statements for individual and corporate business organizations. Not open to students in curriculum in Business Administration. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

280. Valuation Accounting. 3 semester hours. Each semester and summer.
Advanced course in accounting theory; content and analysis of accounting statements. Prerequisite: Econ. 134. Letbetter.

281. Advanced Accounting. 3 semester hours. First semester and summer.
Application of accounting principles to partnerships, corporations with subsidiaries and branches, companies in financial difficulties. Prerequisite: Econ. 280 or concurrent registration. Letbetter.

286. Tax Accounting. 3 semester hours. Second semester.
Accounting problems in income, sales, social security, and other taxes. Prerequisite: Econ. 280 or concurrent registration. Stewart.

287. Cost Accounting. 3 semester hours. First semester and summer.
Allocation of production costs to determine financial results and guide the management of business enterprises. Prerequisite: Econ. 134 or 136. Letbetter.

288. Advanced Cost Accounting. 2 semester hours. Second semester.
Standard, distribution, and estimated costs and miscellaneous items. Prerequisite: Econ. 287. Letbetter.

289. Governmental Accounting. 2 semester hours. First semester.
Federal, state, and municipal accounts, and accounts for public institutions. Prerequisite: Econ. 280. Stewart.

291. Auditing. 3 semester hours. First semester.
Audits of accounts of commercial enterprises; attention to balance sheet and detail audits. Prerequisite: Econ. 280 and consent of instructor. Stewart.

292. C. P. A. Problems. 3 semester hours. Second semester.
Problems given in various C. P. A. examinations. Prerequisite: Consent of instructor. Stewart.

293. Institutional Accounting. 2 semester hours. Each semester and summer.
Accounting principles and their application to cafeteria, lunch and tea rooms, restaurants, dormitories, clubs, and other institutions. Two two-hour recitation and laboratory periods a week. Not open to students in curriculum in Business Administration. Stewart.

294. Specialized Accounting. 3 semester hours. Second semester.
Specialized statements, foreign exchange, estates and trusts, bank accounting, and stock brokerage. Prerequisite: Econ. 280. Letbetter, Stewart.

COURSES IN TYPEWRITING AND SHORTHAND

FOR UNDERGRADUATE CREDIT

140. Typewriting I. 2 or 3 semester hours. Summer.
The technique of touch typewriting, care of the machine, and skill in operation. Eight or ten hours of class and laboratory a week, with additional practice. Charge, $5.

141. Typewriting II. 2 or 3 semester hours. Summer.
Continuation of Typewriting I. Eight or ten hours of class and laboratory a week, with additional practice. Prerequisite: Econ. 140 or equivalent. Charge, $5.

145. Shorthand I. 2 or 3 semester hours. Summer.
Introduction to Gregg shorthand. Eight or ten hours of class and laboratory a week, with additional practice.

146. Shorthand II. 2 or 3 semester hours. Summer.
Continuation of Shorthand I. Eight or ten hours of class and laboratory a week, with additional practice. Prerequisite: Econ. 145 or equivalent.

Education and Psychology

Professor Holton
Professor Peterson
Professor Strickland
Professor Rust
Professor Davidson
Professor Alm
Professor Langford
Associate Professor Hall
Associate Professor Baxter
Associate Professor Moggie
Assistant Professor Brown
Instructor Lofink

The State Board of Education has set up the following standards or their equivalents for certification of high-school teachers:

1. Three-year Certificate renewable for life.
   a. Complete four years of college work with degree.
   b. At least eighteen hours must be taken in the Department of Education, as follows:
      (1) Three hours each in Educational Psychology and Teaching Participation in High School.
      (2) Twelve hours elected from the following courses: General Psychology, Extracurricular Activities, Educational Measurements,

Curriculum, Statistical Methods Applied to Education, Educational Sociology, Vocational Education, History of Education, Psychology of Childhood and Adolescence, Abnormal Psychology, Mental Tests, Technic of Mental Tests, Social Psychology, Psychology of Art, Psychology of Exceptional Children, Principles of Guidance, and Educational Administration or Principles of Secondary Education.

c. Valid in any elementary or high school in Kansas.

2. Certificate for Teachers of Vocational Agriculture.
   a. Complete four years of college work with degree, including the following:
      (1) Not fewer than fifty hours in technical or practical agriculture.
      (2) Not fewer than twenty-one hours of science related to agriculture.
      (3) Eighteen hours in the Department of Education: Three each in General Psychology, Educational Psychology, Vocational Education, Methods of Teaching Agriculture, Teaching Participation in Agriculture and Educational Administration or Principles of Secondary Education.
      (4) Seventeen hours in mechanical lines related to farm-shop problems.
   b. Valid for three years and may be renewed for life.
   c. The State Board for Vocational Education issues certificates of approval for one year only, to teachers of Vocational Agriculture, and reserves the right to require individual teachers to return to summer school for further preparation when the need becomes apparent.
3. Certificates for Teachers of Vocational Homemaking.
   a. Complete four years of college work with degree, including the following:
      (1) Thirty-four hours in technical home economics, three in Child Guidance, and three in Practice Work in Home Management.
      (2) Eighteen hours in the Department of Education: Three each in General Psychology, Educational Psychology, Vocational Education, Methods of Teaching Home Economics, Teaching Participation in Home Economics, and Educational Administration or Principles of Secondary Education.
   b. Valid for three years and may be renewed for life.
4. Certificate for Teachers of Industrial Arts.
   a. Complete four years of college work with degree, including the following: Eighteen hours in the Department of Education; three each in General Psychology, Educational Psychology, Educational Sociology, Methods of Teaching Industrial Arts, Teaching Participation in High School, and Educational Administration or Principles of Secondary Education.
   b. Valid for three years and may be renewed for life.
5. To comply with the regulations of the State Board of Education regarding teachers' certificates based on four years of college work, the student must complete at least twenty-four of the last thirty semester hours or fifty of the last sixty semester hours, in residence at the college which grants the degree.
6. Any student who wishes to prepare for certification must present a statement from the Department of Student Health which shows that a satisfactory physical examination has been passed.
7. A certificate of proficiency in guidance will be issued by the Department of Education to those with satisfactory scholarship requirements who have completed the following: Educational Measurements, Statistical Methods Applied to Education, Principles of Guidance, Mental Tests, Technic of Mental Tests, Psycholgy of Exceptional Children, and Guidance Practicum.

COURSES IN EDUCATION

FOR UNDERGRADUATE CREDIT

109. Educational Psychology. 3 semester hours. Each semester and summer.
Psychology of the learner and the learning process. Prerequisite: Educ. 184 and junior standing. Moggie.

111. Methods of Teaching. 3 semester hours. Summer.
Problems of general method in classroom procedure in elementary grades. Prerequisite: Educ. 184; open to freshmen and sophomores only. Staff.

114. General Methods for Elementary Teachers. 4 semester hours. Summer.
A refresher course for teachers who wish to renew a certificate for teaching in elementary schools. Staff.

115. Methods of Teaching High-School Aeronautics. 4 semester hours. Summer.
A refresher course which includes objectives and principles related to aeronautics; methods of classroom presentation. Staff.

116. General Methods in Social Studies and Elementary Science. 4 semester hours. Summer.
A refresher course based upon the Kansas Elementary Course of Study. Staff.

117. Teaching Participation in Elementary Schools. 1 to 4 semester hours. Second semester and summer.
Work is done in an elementary school in Manhattan. Appointment must be made at the time of registration. Prerequisite: Educ. 184 and sophomore standing. Strickland.

129. Teaching Participation in Music. 1 to 4 semester hours. Each semester and summer.
Work in this course is done in an elementary school of Manhattan. Appointment must be made at the time of registration for the semester during which it is done. Prerequisite: Educ. 184. Hartman.

132. Methods of Teaching Home Economics. 3 semester hours. Each semester and summer.
Principles of teaching applied to the selection and development of home economics subject matter in lessons for all types of pupils, and to the conduct of laboratory and classroom exercises. Prerequisite: Clo. and Text. 114, Educ. 184, and Foods and Nutr. 102 and 107. Charge, 25 cents. Rust, Baxter.

133. Methods of Teaching for Dietetic Students. 3 semester hours. Each semester.
Principles of teaching applied to selection, organization, and development of subject matter for individuals and courses taught by dietitians. Prerequisite: Inst. Mgt. 101 or Foods and Nutr. 202 or concurrent registration Charge, 25 cents. Rust.

134. Methods of Teaching Industrial Arts. 3 semester hours. Each semester and summer.
Methods of teaching, lesson planning, organization of subject matter, and class projects applied to general shop work, woodworking, sheet metal, arc and oxyacetylene welding, machine shop practice, motor mechanics, and other industrial arts subjects. Prerequisite: Senior standing and consent of instructor. Moore.

136. Methods of Teaching Agriculture. 3 semester hours. Each semester and summer.
Lesson plans, organization of materials, and direction of class, laboratory, and field instructional work in vocational agriculture. Individual and class projects are studied, as well as coördination of farm mechanics work. Prerequisite: Educ. 184. Davidson.

160. Teaching Participation in Home Economics. 3 semester hours. Each semester and summer.

Supervised teaching carried on in the home economics classes of the Manhattan high school. Prerequisite: Clo. and Text. 114, Educ. 132, and Foods and Nutr. 102 and 107, or concurrent registration. Charge, 25 cents. Staff.

161. Teaching Participation in Agriculture. 3 semester hours. Each semester.

Three weeks of observation and practice teaching in vocational agriculture classes in Manhattan high school and other high schools by arrangement; group study of classroom problems; lesson plans and presentation criticized by the college instructor and the vocational teacher in the practice department. Prerequisite: Educ. 109 and 136. Davidson.

163. Teaching Participation in High School. 1 to 4 semester hours. Each semester and summer.

Work is done in classes in the Manhattan high school, and appointment must be made at the time of registration. The work may be elected in biology, English, mathematics, modern languages, physical science, social science, art, physical education, and industrial arts. Prerequisite: Educ. 109 and senior standing. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Extracurricular Activities. 3 semester hours. Second semester and summer.

Organization, sponsorship, and educational values of school publications, athletics, assembly programs, student council, home room, clubs, classes, dramatics, and musical organizations in the junior and senior high school, with special emphasis on the small and rural high-school situations. Prerequisites: Educ. 184. Moggie.

206. Philosophy of Education. 3 semester hours. Summer.

Controlling and unifying philosophy of the American public school system and its European background. Prerequisite: Educ. 109. Holton.

208. Visual Instruction. 2 semester hours. Second semester and summer.

Sources of supply, operation, maintenance, and educational principles in the use of visual instructional material. (Offered in conjunction with the Department of Physics.) Prerequisite: Senior standing and consent of instructor. Moggie.

210. Educational Administration. 3 semester hours. Each semester and summer.

Organization of state, county, city, and rural school systems in Kansas; Kansas school laws. Not open to students who have credit in Educ. 236. Prerequisite: For undergraduate credit, junior standing; for graduate credit, Educ. 109 and 184. Strickland.

212. Educational Measurements. 3 semester hours. Each semester and summer.

Scientific measurement of achievement as distinguished from intelligence testing. Prerequisite: Educ. 109 and 184. Strickland.

219. Curriculum. 3 semester hours. Summer.

Requirements of modern life upon schools and their objectives; examination of the entire school curriculum. Prerequisite: Six hours in education and junior standing. Holton.

223. Statistical Methods Applied to Education. 3 semester hours. Each semester and summer.

Sampling, organization and representation of data, selection and computation of appropriate statistics, interpretation of results, and research methods. Students may work with data from field of major interest. Prerequisite: Junior standing. Not open to students who have credit in Math. 126. Moggie.

230. Principles of Guidance. 3 semester hours. Each semester and summer.
Methods and practices in pupil guidance for vocations and career planning; analysis of desirable trades, professions, and business callings; guidance problems in the public schools. Prerequisite: Educ. 210 or 236. Staff.

231. Supervision of Home Projects. 1 or 2 semester hours. Each semester and summer.
Philosophy of home projects and the technic in their use to sustain classroom instruction. Prerequisite: Educ. 132 and junior standing. Staff.

232. Teaching Subjects Related to Home Economics. 1 to 3 semester hours. Each semester and summer.
Objectives and principles in teaching subjects related to home economics; planning of courses of study which are based upon the problem methods of teaching. Designed for teachers of vocational homemaking in the Smith-Hughes high-school courses. Prerequisite: Educ. 132 and 184. Charge, 25 cents. Rust.

234. Methods in Adult Homemaking Classes. 1 to 3 semester hours. Summer.
Principles of teaching applied to adult classes and a demonstration class in one or more phases of homemaking. Prerequisite: Educ. 132 and 184 or equivalent. Rust.

236. Principles of Secondary Education. 3 semester hours. Each semester and summer.
Historical study of secondary education; objectives of junior and senior high-school organization, administration, and supervision; methods of organizing and conducting secondary education; field problems in junior and senior high school. A limited amount of field work required. Not open to students who have credit in Educ. 210. Prerequisite: Educ. 184 and junior standing. Davidson.

239. Educational Sociology. 3 semester hours. Each semester and summer.
Group activities of the school in relation to personality traits, psychology of personality, the school's responsibility in the development of socialized personality traits. Prerequisite: Educ. 184 and junior standing. Holton.

241. Vocational Education. 3 semester hours. Each semester and summer.
Provisions for vocational education in Kansas and other states and countries; principles underlying such education; relation of vocational education to the community, county, state, and nation. Prerequisite: Educ. 210 or 236. Davidson.

244. History of Education. 3 semester hours. Each semester and summer.
History of education in the United States, with a consideration of the more important present-day problems in the organization, administration, and adjustment of public education in the light of historical development. Staff.

248. Problems in Education. Credit to be arranged. Each semester and summer.
Prerequisite: Educ. 184 and consent of instructor. Staff. Work is offered in:

Educational Administration. Strickland.
Educational Measurements. Strickland.
Educational Psychology. Moggie.
Educational Sociology. Holton.
Extension Education. Gemmell, Fleenor.*
Principles of Guidance. Davidson.
Teaching Methods. Strickland.
Statistical Methods Applied to Education. Moggie.
Vocational Education. Davidson.

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* From the staff of the Department of Home Study.

255. Techniques in Agricultural Education. 3 semester hours. First semester.

Emphasis given to teaching in the field of vocational education in agriculture; the agricultural curriculum, courses of study, farming programs and supervision, laboratory and field instruction, and sources, selection, preparation and use of audio-visual instructional material. One hour of recitation and six hours of laboratory a week. Prerequisite: Educ. 241. Staff.

256. Teaching Part-time and Adult Classes in Agriculture. 3 semester hours. Second semester.

Organization and preparation of materials, and methods used in teaching part-time and adult classes in vocational education in agriculture for young farmers and adults. Departments are visited for the purpose of evaluating programs and results. Prerequisite: Educ. 241. Staff.

FOR GRADUATE CREDIT

306. Advanced Educational Administration. 3 semester hours. Summer.

Constitutional and legal basis of public school administration. Intended primarily for school executives. Prerequisite: Educ. 210 or equivalent. Strickland.

313. Research in Organization and Presentation of Home Economics. Credit to be arranged. Each semester and summer.

Individual research problems in phases of organization and administration for home economics. May be chosen as the basis for thesis for the master's degree. The nature of the problem will depend upon the student's major interest. Prerequisite: Graduate standing. Rust.

314. Organization and Presentation of Home Economics. Credit to be arranged. Each semester and summer.

Prerequisite: Graduate standing. Rust.

315. Supervision in Home Economics. 2 semester credits. Second semester and summer.

Problems met by a supervisor or director of home economics in the public schools, standardization of work, relation of supervisor to teacher, modernization of plant and equipment, course of study. Prerequisite: Educ. 160 and experience in teaching home economics. Rust.

318. Seminar in Home Economics Education. 2 or 3 semester hours. Second semester and summer.

Recent trends in home economics education. Prerequisite: Educ. 160 and experience in teaching home economics. Rust and visiting instructors.

325. Research in Education. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department. Staff. Work is offered in:

Educational Administration. Strickland.
Educational Measurements. Strickland.
Educational Psychology. Moggie.
Educational Sociology. Holton.
Principles of Guidance. Davidson.
Teaching Methods. Strickland.
Statistical Methods Applied to Education. Moggie.
Vocational Education. Davidson.

COURSES IN PSYCHOLOGY

FOR UNDERGRADUATE CREDIT

137. Mental Hygiene. 3 semester hours. Each semester.

Analysis of problems of living and learning in college, with readings and conferences concerning personal adjustments. Not to be substituted for Educ. 184. Two hours of recitation and three of laboratory a week. Peterson.

151. Psychology of Effective Study. 2 semester hours. Each semester.
Diagnosis of individual difficulties and application of remedial measures. One hour of recitation and three of laboratory a week. Prerequisite: Consent of the Dean of the School of Home Economics. Moggie.

184. General Psychology. 3 semester hours. Each semester and summer. Charge, 25 cents. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

250. Psychology of Childhood and Adolescence. 3 semester hours. Each semester and summer.
Genetic study of the trends in the development of structures, capacities, interests, and personality traits that facilitate understanding and control of the behavior of childhood and adolescence. Prerequiste: Educ. 184. Alm.

254. Abnormal Psychology. 3 semester hours. Each semester and summer.
Maladjustment of personality, behavioral disorders, psychoneuroses, dementias, dreams, hypnotism, and multiple personality. Prerequisite: Educ. 184. Alm.

257. Advanced General Psychology. 3 semester hours. Second semester.
Fundamental problems, methods, and interpretations of general psychology. Prerequisite: Educ. 184. Langford.

259. Experimental Psychology. 3 semester hours. Each semester.
Experiments in animal and sensorimotor learning; survey of the experimental literature; objective studies of the thought processes. Prequisite: Educ. 184. Peterson.

260. Mental Tests. 3 semester hours. Each semester.
Selection of the best tests for particular purposes at various age and school levels; methods of conducting and scoring tests and of utilizing test results. Prerequisite: Educ. 184. Peterson.

261. Technic of Mental Tests. 3 semester hours. Second semester.
Methods of giving and scoring the principal standard group tests of intelligence and special abilities; choice of tests; tabulation and interpretation of scores. Prerequisite: Educ. 223 and 260 or concurrent registration. Peterson.

265. Psychology of Advertising and Selling. 3 semester hours. Second semester.
Experimental results of present advertising and selling practices. Prerequisite: Educ. 184. Peterson.

266. Psychology of Exceptional Children. 3 semester hours. Second semester and summer.
Mental giftedness, mental subnormality, speech disorder, handedness, psychoneurotic and psychopathic personality trends and delinquency in children, with emphasis on causes, diagnostic tests, and behavioral adjustments. Prerequisite: Educ. 184. Alm.

269. Animal Psychology. 3 semester hours. First semester.
Animal behavior from the standpoint of sensory capacities, perception, adaptive behavior, learning, insight, and other functions. A survey of psychological apparatus and contributions to animal psychology. Prerequisite: Educ. 184 and Zoöl. 105. Alm.

270. Social Psychology. 3 semester hours. Second semester and summer.
The individual as a member of the group, including results of experiments upon and observation of the individual in the group situation. Prerequisite: Educ. 184. Langford.

271. Principles and Technics of Counseling. 3 semester hours. First semester.

Preparation and use of data to facilitate the satisfactory solution of problems of personal, academic, or vocational adjustment. Prerequisite: Senior standing. Staff.

273. Psychology and Personnel Management. 3 semester hours. First semester.

Scientific principles and procedures involved in employment; promotion, motivation of work, measurement and reward of achievements. Prerequisite: Educ. 184. Peterson.

276. Psychology of Art. 3 semester hours. Each semester and summer.

Brief introduction to the philosophy of art; interpretation of psychological principles used in production and appreciation of art; review of experimental esthetics in pictorial art and music, with special emphasis on the former. Prerequisite: Educ. 184. Langford.

278. Problems in Psychology. Credit to be arranged. Each semester and summer.

Prerequisite: Consult instructor. Staff.

279. Guidance Practicum. Credit to be arranged. Each semester and summer.

Field practice in areas of testing measurement, organization, and counseling. Prerequisite: Educ. 212, 230, 260, and senior standing. Staff.

280. Personnel Management Practicum. Credit to be arranged. Each semester and summer.

Directed experience in the application of principles and procedures of personnel management. Prerequisite: Senior standing, and 15 hours in courses related to personnel management. Staff.

FOR GRADUATE CREDIT

373. Psychology of Teaching and Learning. 3 semester hours. First semester and summer.

Analysis of the various forms of learning and the conditions favorable to the rapid development and effective functioning of knowledge, skills, attitudes, and purposes. Prerequisite: Educ. 184. Peterson.

376. Research in Psychology. Credit to be arranged. Each semester and summer. Staff.

COURSES FOR FOUR-WEEK SUMMER SCHOOL

FOR GRADUATE AND UNDERGRADUATE CREDIT

283. Administration and Supervision of Secondary Schools. 2 semester hours. Four-week SS.

Problems of organization, administration, and supervision which cover the complete program of an administrative head of a school system in a small city. Designed for principals of rural high schools and superintendents of small city systems. Prerequisite: Educ. 210. Strickland.

285. Project Method in Agricultural Education. 2 semester hours. Four-week SS.

Intensive treatment of values, analysis, accounting, supervision, types, results, records, reports of projects; conducted on the problem basis. Prerequisite: Educ. 161. Staff.

287. Organization and Conduct of Group Activities. 2 semester hours. Four-week SS.

Fundamentals and principles on which productive class projects should be organized, research and field work in class project study. Prerequisite: Educ. 241. Staff.

289. Administration and Supervision of Vocational Education. 2 semester hours. Four-week SS.

Objectives, curriculum organization and content, administrative and supervisory problems from the viewpoint of the city superintendent; leadership needs which must be met in a school system which offers vocational education; problem basis of treatment is used. Prerequisite: Educ. 210 or 236. Davidson.

291. Community Problems in Vocational Agriculture. 2 semester hours. Four-week SS.

Methods, organization, and conduct of club work, junior project work, class projects, and community projects in general; a course conducted on the problem basis and designed specifically for teachers, supervisors, and directors of agricultural work. Prerequisite: Consult instructor. Staff.

293. Problems in Evening School Classes. 2 semester hours. Four-week SS.

Problems of organization, curriculum, and methods of teaching evening schools and classes sponsored by the national vocational education act, designed for teachers in service. Prerequisite: Graduate standing and one year's experience teaching vocational agriculture. Staff.

295. Organization Problems in Teaching Farm Mechanics. 2 semester hours. Four-week SS.

Analysis of the farm mechanics course of study; needs and interests of boys, learning difficulties, skills, and technical knowledge required, correlation with agriculture; application of laws of learning to the teaching process; determination of objectives. Prerequisite: Educ. 161. Staff.

FOR GRADUATE CREDIT

339. Problems in Part-time Classes. 2 semester hours. Four-week SS.

Organization, curriculum, and method of teaching part-time classes, by national vocational education act, designed for teachers in service. Prerequisite: Graduate standing and one year's experience teaching vocational agriculture. Staff.

340. Statistical Methods in Agricultural Education. 2 semester hours. Four-week SS.

Fundamental statistical technics and interpretation of results; problems encountered in the organization, use, and expression of agricultural data. Prerequisite: Graduate standing. Moggie.

English

Professor Davis
Professor Conover
Professor Rockey
Professor Matthews
Professor Rice
Professor Faulkner
Professor Peterson
Associate Professor Sturmer
Associate Professor Elcock
Associate Professor Breeden
Associate Professor Callahan
Assistant Professor Garvey
Assistant Professor Parker
Assistant Professor Aberle
Assistant Professor Scott
Instructor Laman
Instructor Baker

For a minor, the following courses should be completed in addition to 111 and 112: 170 and 171, or 173 and 174, plus three courses selected from 219, 220, 232, 243.

For a major, the general requirement is 30 semester hours subsequent to Engl. 111 and 112. These courses should be selected in consultation with the head of the department.

FOR UNDERGRADUATE CREDIT

0. Subfreshman English. No credit. Each semester.
Staff.

111. Written Communications I. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 0 or satisfactory entrance test. Charge, 50¢. Staff.

112. Written Communications II. 2 semester hours. Each semester and summer.
Prerequisite: Engl. 111. Charge, 50¢. Staff.

122. Commercial Correspondence. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. Writing of adjustment, credit, collection, and sales letters; principles of effective commercial writing. Faulkner and Callahan.

123. Written and Oral Salesmanship. 3 semester hours. Each semester.
Prerequisite: Engl. 112. Writing of follow-up systems of sales letters; composition and display of circular material and catalogues; principles of advertising and psychology of selling; sales talks; actual sales practice with commercial concerns. Faulkner.

125. Business English and Salesmanship. 3 semester hours. Second semester.
Prerequisite: Engl. 112. Principles of business letter writing and salesmanship in the field of engineering; writing of business letters; preparation of oral and written sales material. Callahan.

140. Children's Literature. 3 semester hours. Summer.
Planned to meet the needs of teachers of rural and grade schools. Staff.

169. English Proficiency. Required. Each semester.
An examination to demonstrate proficiency in written English.

170. English Literature I. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. Staff.

171. English Literature II. 3 semester hours. Each semester and summer.
Prequisite: Engl. 112. Staff.

173. American Literature I. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. Staff.

174. American Literature II. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. Staff.

181. History of English Literature. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 170. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

215. Technical Reports. 1 semester hour. Each semester.
Prerequisite: Engl. 112. Organization and writing of technical reports, to accompany certain courses in engineering specified by heads of engineering departments. Peterson.

219. Advanced Composition I. 3 semester hours. First semester.
Prerequisite: Engl. 112. Subjects selected from the student's particular field of work; exposition of mechanisms, processes, and general expository writing. Davis.

220. Advanced Composition II. 3 semester hours. Second semester.
Prerequisite: Engl. 112. Narrative writing both in its relation to the

other forms of composition as an independent form. Direction and criticism of thesis work is offered to graduate students. Davis.

223. Advanced Problems in Commercial Correspondence. 3 semester hours. Second semester.
Prerequisite: Engl. 122. Writing adjustment, credit, and collection letters; specialized study and writing sales and business promotion letters; composition of form paragraphs and circular letters; correspondence supervision. Faulkner.

228. Short Story I. 3 semester hours. First semester.
Prerequisite: Engl. 170. The world's best short stories; practice in writing sketches and short stories. Rice.

230. Short Story II. 3 semester hours. Second semester.
Prerequisite: Engl. 170. Preparation of the short story for publication; the short story in America; types, characteristics, and tendencies. Rice.

232. Oral English. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. Oral composition as applied to conversation and informal discussions; correction of errors in grammar, pronunciation, and idiom in everyday speech; a brief history of English sounds. Investigations in phonology for graduate students. Matthews, Faulkner.

243. Advanced Grammar. 3 semester hours. Each semester and summer.
Prerequisite: Engl. 112. English etymology, inflections, syntax, and modern English and American usage. For graduate credit, reports on problems in modern English grammar. Elcock, Aberle.

245. History of the English Language. 1 semester hour.
Prerequisite: For undergraduates, consent of the instructor; for graduates, Engl. 173. Nature of languages and its development; English language and its use in the United States. Nock.

247. Problems in English. Credit to be arranged. Each semester and summer.
Prerequisite: Engl. 112. Staff. Work offered in:
Chaucer and Shakespeare. Elcock, Sturmer.
Classical Epics. Faulkner.
Midwestern Literature. Callahan.
Modern Drama and Fiction. Conover.
Novel and Short Story. Rice, Breeden.
Old and Middle English. Matthews.
Romantic Revival. Rockey, Peterson.
Sketch and Column Writing. Davis.
Technical Reports. Peterson.

252. Children's Readings. 3 semester hours. Second semester.
Prerequisite: Engl. 170. Literature for children; selection of books for children training in story telling. For students of child guidance and camp counseling. Elcock, Aberle.

255. Cultural Reading. 3 semester hours. Each semester.
Not open to students who have credit in Engl. 170, 171, 173, 174, or 181.
Prerequisite: Engl. 112. Reading course in English and American Literature, designed for students in agriculture, engineering, and other technical curriculums. Matthews.

260. Chaucer. 3 semester hours. First semester.
Prerequisite: Engl. 170. Elcock.

262. Milton and the Puritan Revolt. 3 semester hours. Second semester.
Prerequisite: Engl. 170. Elcock.

268. Midwestern Literature. 3 semester hours. First semester.
Prerequisite: Engl. 170. Literature of the Middle West, particularly

Kansas and the surrounding territory; its background, authors, and literature since the close of the Civil War. Callahan.

271. English Bible. 3 semester hours. Each semester and summer. Prerequisite: Engl. 170. Conover, Rockey.

273. Shakespearean Drama I. 3 semester hours. First semester. Prerequisite: Engl. 170. Life and times of Shakespeare; five of Shakespeare's tragedies: Macbeth or Othello, Hamlet, King Lear, Romeo and Juliet, and Coriolanus. Conover, Sturmer.

274. Shakespearean Drama II. 3 semester hours. Second semester. Prerequisite: Engl. 170. Five of Shakespeare's comedies: The Winter's Tale, As You Like It, Twelfth Night, Cymbeline, and The Tempest; collateral reading of earlier, contemporary, and Shakespearean comedy; present-day criticism of Shakespeare. Conover, Sturmer.

276. English Essayists. 3 semester hours. Second semester. Prerequisite: Engl. 170. Among the authors discussed are Swift, Addison, Steel, Johnson, Burke, Lamb, Hazlitt, DeQuincey, Wilson, Newman, Ruskin, Spencer, Huxley, Pater, and Wilde. Davis, Conover.

278. Wordsworth, Shelley, and Keats. 3 semester hours. First semester. Prerequisite: Engl. 170. Peterson.

280. World Classics I. 3 semester hours. First semester. Prerequisite: Engl. 170. Literary masterpieces (in translation) of early times, particularly Greek and Latin classics. Faulkner.

281. World Classics II. 3 semester hours. Second semester. Prerequisite: Engl. 170. Literary masterpieces (in translation) of western Europe, particularly Italian, Spanish, French, and German writings. Faulkner.

283. Contemporary Fiction. 3 semester hours. First semester and summer. Prerequisite: Engl. 170. The more important British and American fiction since Hardy. Conover, Scott.

284. Contemporary Drama. 3 semester hours. Second semester. Prerequisite: Engl. 170. Development of the drama since Ibsen; types of modern drama; works of important English, Irish, and American dramatists. Conover.

286. Novel I. 3 semester hours. First semester. Prerequisite: Engl. 170. Breeden.

287. Novel II. 3 semester hours. Second semester. Prerequisite: Engl. 170. Breeden.

288. English Survey I. 2 semester hours. First semester. Prerequisite: Engl. 173. History of English literature from Anglo-Saxon times down to the close of the Elizabethan period. Matthews.

290. English Survey II. 2 semester hours. Second semester. Prerequisite: Engl. 173. Rise of Puritanism and its influence on English literature; classical movement; romanticism and its development. Matthews.

293. Browning and Tennyson. 3 semester hours. Second semester. Prerequisite: Engl. 170. Peterson.

295. Modern Thought in Recent Literature. 3 semester hours. Each semester. Prerequisite: Engl. 170. Trends in thought, of especial interest to women, in British and American literature since 1914. Elcock.

297. Contemporary Poetry. 3 semester hours. Second semester and summer. Prerequisite: Engl. 170. Davis, Conover.

FOR GRADUATE CREDIT

305. Research In English. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department. Staff. Work offered in:

Chaucer and Shakespeare. Elcock, Sturmer.
Classical Epics. Faulkner.
Midwestern Literature. Callahan.
Modern Drama and Fiction. Conover.
Novel and Short Story. Rice, Breeden.
Old and Middle English. Matthews.
Romantic Revival. Peterson.
Sketch and Column Writing. Davis.
Technical Reports. Peterson.

Entomology

Professor SMITH
Professor DEAN
Professor PARKER
Professor PAINTER
Associate Professor WILBUR
Associate Professor BRYSON
Assistant LAMERSON

Entomology is the study of insects and certain other closely related animal types. The more technical, advanced courses provide professional training leading to research, resident and extension teaching, plant and animal inspection and administration in this field in the services of colleges, experiment stations, and other agencies of the states and the Federal government.

For a minor, the following courses should be completed: 101 (4 hours) or 203. and five or six additional credit hours in the 200 group.

For a major, in addition to the minor, the following courses should be completed: At least ten credit hours in the 200 group.

FOR UNDERGRADUATE CREDIT

101. General Entomology. 3 or 4 semester hours. Each semester and summer.

A basic study of insects and related arthropods as animals and how they affect plants and animals, including man. Students who desire to use this course as a prerequisite to other courses in entomology should register for the laboratory, which is the same as for Ent. 203. Three hours of recitation, with an optional three hours of laboratory a week. Charge, $1. Staff.

117. Milling Entomology. 2 semester hours. Second semester.

Insect pests of flour mills, elevators, granaries, warehouses, and bakeries, and standard methods of dealing with them; inspection trips to flour mills and warehouses. Dean.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Horticultural Entomology. 2 semester hours. First semester.

Prerequisite: Ent. 101 (4 hours) or Ent. 203. Injurious insects of the vegetable garden, shade trees, flowering and greenhouse plants, deciduous and citrus orchards; methods of control; insecticides. Parker.

203. General Economic Entomology. 3 semester hours. Each semester.

Prerequisite: Zoöl. 105 or Bot. 102; when taken for graduate credit, Zoöl. 105. Elementary anatomy and physiology of insects; the life histories, habits, and control recommendations for the more important insects pests. Two hours of recitation and three hours of laboratory a week. Charge, $1.50. Staff.

206. Staple Crop Entomology. 3 semester hours. Second semester.
Prerequisite: Ent. 101 (4 hours) or 203, and Zoöl. 105. Important economic insects of field crops, and methods of dealing with them. Two hours of recitation and three hours of laboratory a week. Charge, $1.50. Dean and Wilbur.

208. General Apiculture. 3 semester hours. Second semester.
Prerequisite: Ent. 101 (4 hours) or 203. Structure, life history, general behavior, activities, and products of the honeybee; practice beekeeping; bee diseases and their eradication and control; relation of bees to agriculture and horticulture. Two hours of recitation and three hours of laboratory a week. Charge, $1. Parker.

211. External Insect Morphology. 3 semester hours. First semester.
Prerequisite: Ent. 203. External anatomy of representative insects belonging to a number of orders; structure of the exoskeleton; a basis for taxonomy and hexapod morphology. One hour of recitation and six hours of laboratory a week. Charge, $2.50. Wilbur.

212. Internal Insect Morphology. 3 semester hours. Second semester.
Prerequisite: Ent. 211. Internal anatomy of representative insects; plan and structure of the internal systems. Nine hours of laboratory a week. Charge, $2.50. Painter.

216. Principles of Taxonomy. 1 semester hour. Second semester.
Prerequisite: Ent. 203, 211, and 216 or concurrent registration. Determination of major orders of insects; taxonomic literature; use of catalogues. Painter.

217. Taxonomy of Insects I. 2 semester hours. Second semester.
Prerequisite: Ent. 203, 211, and 216 or concurrent registration. Determination of major orders of insects; taxonomic literature; use of catalogues. Six hours of laboratory a week. Charge, $2.50. Painter.

218. Taxonomy of Insects II. 3 semester hours. Second semester.
Prerequisite: Ent. 217. Intensive study of a selected group of insects. Nine hours of laboratory a week. Charge, $2.50. Painter.

221. Advanced General Entomology. 3 semester hours. Second semester.
Prerequisite: Ent. 101 (4 hours) or 203, and Zoöl. 105. Broad biological aspects of the subject; understanding of the relation of insects to the complex environmental factors; the various subdivisions of entomology. Wilbur.

226. Medical Entomology. 3 semester hours. First semester.
Prerequisite: Ent. 101 (4 hours) or 203, and Zoöl. 105. Insects and other arthropods as parasites and disseminators of disease; life cycles, biology, and control of insect parasites. Two recitations and three hours of laboratory a week. Charge, $2.50. Smith.

229. Advanced Apiculture I. 3 semester hours. Each semester.
Prerequisite: Ent. 208. Requeening; wintering; honey extraction and marketing. Two hours recitation and three hours of laboratory a week. Charge, $1. Parker.

230. Advanced Apiculture II. 3 semester hours. Each semester.
Prerequisite: Ent. 208. Honey plant and beekeeping regions; swarm control and colony division; queen rearing and introduction; honey production. Two hours recitation and three hours of laboratory a week. Charge, $1. Parker.

231. Entomological and Zoölogical Literature. 2 semester hours. First semester.
Prerequisite: Ent. 101 (4 hours) or 203, and Zoöl. 105. This course, which presupposes a general knowledge of library methods, is a study of the current and past literature of all types in the zoölogical sciences, and the preparation and publication of technical papers. Especial emphasis is

given to the best time-saving aids and methods for all aspects of library work for thesis preparation by members of the class and problem work by undergraduates beginning to specialize in any phase of the animal sciences. Smith.

233. Insect Ecology. 2 semester hours. Second semester.
Prerequisite: Ent. 101 (4 hours) or 203, and Zoöl. 105. Influence of light, temperature, pressure, moisture, evaporation, air movements, food relations, biotic and other conditions of soil atmosphere. Bryson.

234. Insect Control by Host Plant Resistance. 2 semester hours. First semester.
Prerequisite: An. Husb. 221 and Ent. 101 (4 hours) or 203 or equivalent. Offered in 1946-'47 and alternate years thereafter. Resistance of varieties of crop plants to insect attack and their utilization in insect control; insect habits and physiology in relation to the cause of resistance and methods of breeding resistant varieties of crops. Painter.

236. Zoölogy and Entomology Seminar. 1 semester hour. Each semester.
Prerequisite: Consult seminar committee.

238. Problems in Entomology. Credit to be arranged. Each semester and summer.
Prerequisite: Ent. 208 or 217. Work is offered in:
Apiculture. Parker.
Economic Entomology. Staff.
Taxonomy and Morphology. Smith, Painter, Wilbur.

240. Insect Physiology. 3 semester hours. Second semester.
Prerequisite: Ent. 211 and Zoöl. 222. Physiology of the cell, respiration, metabolism, reproduction, muscular action, nervous responses, sense organs and senses, circulation, glandular system, metamorphosis and effects of insecticides. Parker.

FOR GRADUATE CREDIT

316. Research in Entomology. Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department. Work is offered in:
Apiculture. Parker.
Economic Entomology. Staff.
Medical Entomology. Smith.
Taxonomy and Morphology. Smith, Painter, Wilbur.

Geology

Professor Sperry
Associate Professor Byrne
Assistant Professor Chelikowsky
Intructor Harned

For a minor, the following courses should be completed: 103, 110, 203, and 209.

For a major, in addition to the minor, the following courses should be completed: 215, 220, and 230, and seven additional hours. The student should enroll in the Curriculum in Physical Science.

FOR UNDERGRADUATE CREDIT

102. Engineering Geology. 4 semester hours. Each semester.
Prerequisite: Chem. 110 or equivalent. General principles of geology and their application to engineering problems. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Sperry, Chelikowsky.

103. General Geology. 3 semester hours. Each semester and summer.
Structural and dynamic features of the earth; the rock-forming minerals; the rocks and their decay; a short history of the earth. Three or four field trips during the semester. Charge, $1.50. Staff.

110. Physiographic Geology. 3 semester hours. Second semester and summer school.
Prerequisites: Geol. 102 or 103. Topography of the earth and forces that have produced it. Origin of the topographic features of North America. Charge, $1.50. Sperry, Chelikowsky.

140. Principles of Geography. 3 semester hours. Second semester and summer school.
Introductory course in college geography; relationships between human activities and environment. Charge, $1.50. Sperry.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Historical Geology. 4 semester hours. Each semester.
Prerequisite: Geol. 102 or 103. Physical and biological events through which the earth has gone. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Chelikowsky.

204. Aerial Phototopography. 3 semester hours. First semester.
Prerequisite: Geol. 102 or 103. Interpretation and use of aerial photographs; conical perspective; oblique mapping methods; characteristics of vertical photographs; stereoscopic contouring methods; and adjustment of geologic, cultural, and topographic detail. One hour of recitation and six hours of laboratory a week. Charge, $1.50. Chelikowsky.

207. Economic Geology. 4 semester hours. Second semester.
Prerequisite: Chem. 110 and Geol. 203. Origin and mode of occurrence of nonmetallic minerals, including coal and petroleum, and of metallic mineral deposits. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Sperry.

209. Crystallography and Mineralogy. 4 semester hours. First semester.
Prerequisite: Chem. 110. The fundamentals of crystallography and its use in mineral identification; physical and chemical mineralogy. Two hours of recitation and six of laboratory a week. Charge, $1.50. Sperry, Chelikowsky.

210. Field Geology. Credit to depend upon the amount of work done. Summer school.
Opportunity is offered students to do field work in the Rocky Mountains. Students interested should consult Mr. Sperry.

215. Structural Geology. 4 semester hours. Second semester.
Prerequisite: Geol. 203 and 209. Mechanics of the earth's crust, interrelation of structures found in the earth. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Sperry, Chelikowsky.

220. Invertebrate Paleontology. 4 semester hours. First semester.
Prerequisite: Geol. 203. Evolution and geologic history of the invertebrate animals. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Byrne, Harned.

223. Petroleum Geology. 4 semester hours. Second semester.
Prerequisite: Geol. 203. Origin, migration, and accumulation of petroleum, stratigraphy and structure of important fields. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Chelikowsky.

224. Stratigraphic Geology. 4 semester hours. First semester.
Prerequisite: Geol. 203. Description, classification, and correlation of

stratigraphic units, with emphasis on those of Kansas. Three hours of recitation and three hours of laboratory a week. Charge, $1.50. Byrne, Harned.

230. Field Methods in Geology. 3 semester hours. First semester.
Prerequisite: Geol. 203. Construction of geologic maps, including a complete map of the Manhattan area; application of field methods to the problems of geology. One hour of recitation and six hours of laboratory a week. Charge, $1.50. Byrne, Harned.

235. Optical Mineralogy. 4 semester hours. First semester.
Prerequisite: Geol. 209. Polarizing microscope used to identify crystal fragments, powders, sediments, and thin sections; optical methods of microscopic research. Two hours of recitation and six hours of laboratory a week. Charge, $1.50. Sperry, Chelikowsky.

236. Sedimentary Petrology. 5 semester hours. First semester.
Prerequisite: Geol. 203 and 209. Mineralogy and origin of soils and other sediments, their transportation, deposition, and transformation. Three hours of recitation and six hours of laboratory a week. Charge, $1.50. Sperry.

241. Geologic Literature. 3 semester hours. First semester.
Prerequisite: Geol. 203 and 209. Current geologic literature and history of geology. Charge, $1.50. Staff.

245. Applied Geology. 3 semester hours. First semester.
Prerequisite: Geol. 230. Geology applied to the science of engineering, particularly highway engineering. Charge, $1.50. Staff.

255. Vertebrate Paleontology. 3 semester hours. Second semester.
Prerequisite: Geol. 203 or ten hours of Zoölogy. Evolution, geologic history, and classification of the vertebrates. Charge, $1.50. Byrne.

256. Micropaleontology. 3 semester hours. First semester.
Prerequisite: Geol. 203 and junior standing. Preparation, identification, and use of microscopic fossils. One hour of recitation and six hours of laboratory a week. Charge, $1.50. Byrne.

275. Problems in Geology. Credit to be arranged. Each semester and summer school.
Prerequisite: Geol. 203 and 209. Staff.
Work is offered in:
Mineralogy. Chelikowsky.
Paleontology. Byrne.
Sedimentary Petrology. Sperry.

FOR GRADUATE CREDIT

301. Research in Geology. Credit to be arranged. Each semester and summer school.
Prerequisite: At least two courses in this department. Staff.
Work is offered in:
Mineralogy. Chelikowsky.
Paleontology. Byrne.
Sedimentary Petrology. Sperry.

History and Government

Professor Parrish
Professor Iles
Professor Correll
Professor Price
Professor Williams
Professor Sageser
Associate Professor Alsop
Associate Professor Sweedlun

For a minor, those planning to teach should complete the following courses: 106, 107, 127, 128, and 151. Those not planning to teach may substitute certain approved courses for the fulfillment of the minor.

For a major, in addition to the minor, twelve hours from the department's 200-course series should be completed.

Students who plan to major in history and government should enroll in the Curriculum in Arts and Sciences, option B. They should select the elective courses in their major, their options in economics and sociology, and their courses in modern language, with the advice of this department.

Students expecting to teach history and government may work out the educational courses required for a state certificate by making use of some of the free electives provided in the Arts and Sciences curriculum.

COURSES IN HISTORY

FOR UNDERGRADUATE CREDIT

105. American Industrial History. 3 semester hours. Each semester and summer.

Development of American economic growth from colonial beginnings to the present; manufacturing, commerce, finance, labor, and agriculture. Staff.

106. Survey of Civilization I. 3 semester hours. Each semester and summer.

Civilizations of the world to 1650 A. D., with emphasis on Western civilization. Staff.

107. Survey of Civilization II. 3 semester hours. Each semester and summer.

Civilizations of the world since 1650 A. D., with emphasis on Western civilization. Staff.

125. Contemporary World History. 2 semester hours. Each semester and summer.

World developments since 1930. Concurrent registration with Hist. 126 not permitted. Staff.

126. Current History. 1 semester hour. Each semester and summer.

May not be taken more than four semesters for credit. Staff.

127. Survey of American History I. 3 semester hours. Each semester and summer.

Social, economic, political, and international developments of the American nation from the establishment of European colonies through the Civil War. Staff.

128. Survey of American History II. 3 semester hours. Each semester and summer.

Industrial revolution, immigration, imperialism, and the changed national and international setting since the Civil War. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Foundations of the American Republic. 3 semester hours. Each semester and summer.

Origins of American democracy and development of the American nation through the War of 1812, including the industrial, social, constitutional, and political growth with the European background. Prerequisite: 3 hours of American history, or junior standing. Charge, $1. Price, Sweedlun.

202. American Expansion and Sectionalism. 3 semester hours. Each semester and summer.

A study of the West; cultural phases; political and constitutional issues; importance of personal leaders; development of sectionalism from 1812 to 1876, including Kansas; causes and effects of the Civil War. Prerequisite: 3 hours of American history, or junior standing. Charge, $1. Price, Sweedlun.

203. The New American Nation. 3 semester hours. Each semester and summer.

Recent and contemporary history. Problems of the new nation from the Spanish-American War to the present. Prerequisite: 3 hours of American history, or junior standing. Charge, $1. Sageser, Price.

205. American Agricultural History. 2 semester hours. Second semester.

European background and Indian beginnings; colonial period; westward expansion into the prairie and great plains areas; distinctive American developments in machinery, livestock, and types of farming. Prerequisite: Junior standing. Sageser.

208. Latin America. 3 semester hours. Each semester and summer.

Spanish and Portuguese conquest and colonization in America; the colonial system; rise and development of the Latin American nations. Prerequisite: 3 hours of American history, or junior standing. Sweedlun.

209. World Cultures I. 3 semester hours. First semester.

Economic, social, intellectual and artistic aspects of the cultures of primitives, and early Egyptians, Mesopotamians, and Indians; foundational cultural attainments of the Hebrews, Indians, Iranians, Chinese, Greeks and Romans. Prerequisite: 3 hours of European or Asiatic history, or junior standing. Parrish.

210. World Cultures II. 3 semester hours. Second semester.

History of the major living cultural traditions, the science, art, philosophy, and religion of the Semites, Indians, Iranians, Chinese, and Europeans; history of the interaction of European and Asiatic urban cultures. Prerequisite: Hist. 209, or Hist. 106 and 107, or junior standing. Parrish.

211. Modern England. 3 semester hours. Each semester and summer.

Political, economic, and cultural history of modern and contemporary Britain. Prerequisite: 3 hours of European history, or junior standing. Correll, Alsop.

212. Europe Since 1870. 3 semester hours. Each semester and summer.

History of the political, social, economic, and international developments. Prerequisites: 3 hours of European history, or junior standing Correll, Alsop.

213. Russia and the Soviet Union. 3 semester hours. Each semester and summer.

Imperial Russia and the new regime since the Revolution of 1917. Prerequisite: 3 hours of European history, or junior standing. Correll.

225. History of the Home. 3 semester hours. Second semester.

History of marriage and the family from primitive times to the present; marriage customs, position of women, child training; the modern home, recent changes and tendencies. Prerequisite: 3 hours of history, or junior standing. Alsop.

226. British Empire. 2 semester hours. Second semester.

British maritime expansion movement; founding of colonies overseas; growth of self-governing dominions and the British Commonwealth. Prerequisite: 3 hours of European history, or junior standing. Correll.

228. American Diplomatic History. 2 semester hours. First semester.

Development of American foreign policy and international relations from

1763 to the present. Prerequisite: 3 hours of American history, or junior standing. Sageser.

231. History of Religions. 2 semester hours. Each semester.
Historical survey of the world's living religions; the relation of each religion to its natural and cultural environment; dominant religious concepts, leaders, and historic developments which characterize each. Prerequisite: 3 hours of European or Asiatic history, or junior standing. Parrish.

236. Far East. 3 semester hours. Each semester and summer.
Modern and contemporary Chinese, Japanese, and other peoples of Eastern Asia and the western Pacific areas. Internal developments; international relations since the first peace treaties with the Western Powers. Prerequisite: 3 hours of European or Asiatic history, or junior standing. Parrish.

249. History of American Political Thought. 3 semester hours. First semester.
Theories and conceptions underlying the development of the American system of government; attention is directed to the views of eminent publicists and statesmen. Prerequisite: 6 hours of American history, or junior standing. Sageser, Sweedlun.

250. Seminar in History and Government. 2 to 5 semester hours. Each semester and summer.
Prerequisite: Consent of instructor and 5 hours of history basic to the field involved. Staff.

270. Problems in History and Government. Credit to be arranged. Each semester and summer.
Work is offered in:
American History. Sageser, Sweedlun, Price.
European History. Correll, Parrish, Alsop.
Asiatic History. Parrish.
Government and Law. Iles, Williams.
Prerequisite: Consent of instructor and 5 hours of history basic to the field involved. Staff.

290. Historical Method and Bibliography. 2 semester hours. First semester and summer.
Survey of historical works; methods in writing history, historical articles or theses. Required of graduate majors in history. Prerequisite: Consent of instructor and Hist. 106, 107, 127, and 128. Sageser.

FOR GRADUATE CREDIT

301. Research in History. Credit to be arranged. Each semester and summer.
Work is offered in:
American History. Sageser, Sweedlun, Price.
European History. Correll, Parrish, Alsop.
Asiatic History. Parrish.
Prerequisite: Hist. 290 or concurrent registration, and at least two courses in the department. Staff.

COURSES IN GOVERNMENT

FOR UNDERGRADUATE CREDIT

151. American Government. 3 semester hours. Each semester and summer.
State and national government, with emphasis on constitutional principles and on functional activity. Iles, Williams.

154. Contemporary Governments. 3 semester hours. Each semester and summer.
Survey of the leading contemporary national governments. Iles.

163. Business Law I. 3 semester hours. Each semester and summer.
Contracts, agency, and sales. Williams.

164. Business Law II. 3 semester hours. Each semester and summer.
Negotiable instruments, partnerships, and corporations. Williams.

167. Law for Engineers. 2 semester hours. Each semester.
Case study of such rules of law as will prove most useful to engineers and architects; law of contracts. Williams.

175. Farm Law. 2 semester hours. Offered in alternate years.
Law, particularly real property, deeds, mortgages, relation of landlord and tenant, developed through study of Kansas cases. Prerequisite: Not open to students who have credit in Hist. 276. Williams.

FOR GRADUATE AND UNDERGRADUATE CREDIT

206. American Political Parties. 2 semester hours. Offered in alternate years.
Origin, development, leaders, and functions of political parties in America; issues and results of presidential elections; growth of nationality and development of self-government with special reference to present tendencies. Prerequisite: Hist. 151 or junior standing. Iles.

252. Comparative Government. 2 semester hours. First semester and summer.
Principal democracies, including comparisons with the government of the United States; principal dictatorships of Europe. Prerequisite: Hist. 151 or junior standing. Iles, Williams.

253. City Government. 3 semester hours. Second semester and summer.
Government and administration of American cities. Prerequisite: Hist. 151 or junior standing. Iles.

256. International Law. 2 semester hours. First semester.
Nature and scope of international law; factors which contribute to its growth; tendencies in the development of the law today. Prerequisite: Hist. 151 or junior standing. Sageser, Sweedlun.

260. Government and Business. 2 semester hours. Second semester and summer.
Constitutional limitations upon the powers of government; laws which affect economic interests such as trade regulations, taxation, labor legislation, legislation for the benefit of debtors, and emergency legislation. Prerequisite: Junior standing. Williams.

276. Land Law. 2 semester hours. First semester in alternate years.
Interests and rights in land; methods by which such interests and rights are acquired and protected; relation to landlord and tenant and that of mortgagor and mortagee, developed by study of Kansas cases. Prerequisite: Econ. 218; not open to students who have credit in Hist. 175. Williams.

FOR GRADUATE CREDIT

351. Research in Government. Credit to be arranged. Each semester and summer.
Work is offered in:

Government. Iles.
Law. Williams.

Prerequisite: At least two courses in government or law. Staff.

Industrial Journalism and Printing

Professor Lashbrook
Professor Keith
Associate Professor Amos
Assistant Professor Medlin
Assistant Professor Koefod
Instructor Parris

For a major, the student should enroll in the Curriculum in Industrial Journalism.

All students enrolled in the Curriculum in Industrial Journalism and all other students who take courses designated "Journalism fee charged," pay a charge of $1.50 a semester. Only one journalism fee is charged a student in a semester.

To be classified as "professionals," students in the Curriculum in Industrial Journalism must attain a typing speed of thirty words a minute and meet other requirements established by the department faculty.

COURSES IN INDUSTRIAL JOURNALISM

FOR UNDERGRADUATE CREDIT

144. News Pictures. 2 semester hours. Each semester and summer.
Special work in production of news pictures, and writing of picture captions. Six hours of laboratory a week. Prerequisite: Phys. 151 and consent of instructor. Journalism fee charged. Lashbrook.

150. Elementary Journalism. 2 semester hours. Each semester and summer.
Methods of obtaining news, the writing of the lead, and the general forms of the news story. Prerequisite: Sophomore standing. Journalism fee charged. Parris, Koefod.

153. Kansas State Collegian Journalism. 1 semester hour. Each semester and summer.
Gathering and writing of news, or advertising practice, on student publications, under the supervision of an instructor. Three hours of laboratory a week. Prerequisite: Consent of instructor. Medlin.

157. Industrial Writing. 3 semester hours. Each semester.
Principles of journalism in the treatment of industrial subjects. One hour of recitation and six hours of laboratory a week. Prerequisite: Ind. Jour. 150. Journalism fee charged. Parris, Koefod.

160. Agricultural Journalism. 3 semester hours. Each semester.
Principles of news writing as applied to agriculture. Two hours of recitation and three hours of laboratory a week. Journalism fee charged. Lashbrook, Parris.

162. Radio News. 2 semester hours. Each semester and summer.
Processing and broadcasting of radio news. Prerequisite: Ind. Jour. 150. For nonjournalism students, Radio 167. Journalism fee charged. Lashbrook.

166. Editing. 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Ind. Jour. 157. Journalism fee charged. Parris, Koefod.

167. Newspaper and Magazine Writing. 2 semester hours. Each semester and summer.
Feature articles; underlying principles applied to writing on agricultural and other industrial subjects. Prerequisite: Ind. Jour. 157 or consent of instructor. Journalism fee charged. Parris, Koefod.

170. Journalism for Women. 3 semester hours. First semester and summer.
News and feature writing for women's pages and women's magazines; consideration of specialized fields for the woman writer. Prerequisite: Ind. Jour. 167 for journalism majors; Ind. Jour. 150 for others. Journalism fee charged. Koefod.

177. Principles of Advertising. 3 semester hours. Each semester.
Study of goods to be advertised, analysis of the market, psychology of advertising, preparation of advertising copy. Prerequisite: Junior standing. Journalism fee charged. Keith.

179. Radio Advertising. 3 semester hours. Second semester and summer.
Broadcasting station management, principles and practice in radio advertising. Prerequisite. For students in Curriculum in Industrial Journalism, Ind. Jour. 177; for other students, Sp. 162. Journalism fee charged. Heberer.

180. Broadcasting Station Practice. 1 semester hour. Each semester and summer.
News gathering, writing, and broadcasting over radio station KSAC. Three hours of laboratory a week. Prerequisite: Ind. Jour. 162. Journalism fee charged. Lashbrook, Parris.

181. Rural Press. 2 semester hours. Second semester.
Community newspapers; emphasis on presentation of agriculture and rural life. Prerequisite: Ind. Jour. 150. Journalism fee charged. Lashbrook, Parris.

183. Public Information Methods. 2 semester hours. First semester.
Prerequisite: Ind. Jour. 150. Journalism fee charged. Lashbrook, Parris.

199. Industrial Journalism Lecture. Required. Each semester.
Addresses by practicing newspaper workers and members of the department. Required of all students in the Curriculum in Industrial Journalism. Journalism fee charged. Lashbrook.

FOR GRADUATE AND UNDERGRADUATE CREDIT

228. Advanced Reporting. 3 semester hours. First semester and summer.
Reporting news of local, state, and national governments; industrial and scientific news. Two hours of recitation and three hours of laboratory a week. Prerequisite: Ind. Jour. 157. Journalism fee charged. Lashbrook.

229. Supervision of School Publications. 2 semester hours. Second semester and summer.
Prerequisite: For graduate credit, four hours of journalism. Journalism fee charged. Medlin.

230. Formation of Public Opinion. 3 semester hours. Second semester and summer.
Role of the press and communication agencies in formation of public opinion, work of propagandists and pressure groups. Prerequisite: Junior standing and consent of instructor; for graduate credit, eight hours of social science. Journalism fee charged. Lashbrook.

252. Language of Journalism. 2 semester hours. Second semester.
Nature and development of the English language, uses of language, words and meaning, jargon. Prerequisite: Ind. Jour. 157 or consent of instructor. Journalism fee charged. Nock.

253. Contemporary Affairs I. 3 semester hours. First semester.
Contemporary news events and their background. Prerequisite: Senior standing or consent of instructor. Journalism fee charged. Lashbrook, Koefod.

255. Contemporary Affairs II. 3 semester hours. Second semester.
Correlation and unification of various subjects previously pursued in college; contemporary development and contemporary figures in science, the arts, and philosophy. Prerequisite: For students in Curriculum in Industrial Journalism, senior standing; for others, consent of instructor. Concurrent registration with Hist. 126 not permitted. Journalism fee charged. Lashbrook, Koefod.

265. Materials of Journalism. 2 semester hours. First semester.
Principal newspapers and magazines; accuracy and adequacy of news

reports and other published matter; materials handled by the publications; methods of treatment; character of editorial comment. Prerequisite: Ind. Jour. 166. Journalism fee charged. Koefod.

270. Advanced Magazine Writing and Editing. 2 semester hours. Each semester and summer.

Content of the course varied to suit the needs and desires of the students. Prerequisite: Ind. Jour. 167. Journalism fee charged. Koefod.

273. History and Ethics of Journalism. 3 semester hours. First semester. Prerequisite: Junior standing. Journalism fee charged. Medlin.

278. Journalism Surveys. 2 semester hours. Second semester.

Investigation of the periodical reading matter of communities; tabulation of information obtained; relation of the reading matter to the industrial, economic, social, and moral life of the communities. Six hours of laboratory a week. Prerequisite: Ind. Jour. 166. Journalism fee charged. Staff.

282. Column Conducting. 2 semester hours. Second semester. Prerequisite: Engl. 104. Davis.

287. Current Periodicals. 3 semester hours. Second semester. Prerequisite: Engl. 104. Journalism fee charged. Staff.

288. Trade and Technical Writing. 2 semester hours. Second semester.

Theory and practice of writing which pertains to the special interests of industry, trade, and business. Prerequisite: Ind. Jour. 177. Journalism fee charged. Staff.

289. Newspaper Management. 2 semester hours. First semester.

Relations of departments of a newspaper to one another; costs, statistics, advertising news, and business methods in publishing. Prerequisite: Ind. Jour. 177. Journalism fee charged. Medlin.

295. Problems in Industrial Journalism. Credit to be arranged. Each semester and summer.

Prerequisite: Consent of instructor. Journalism fee charged. Staff.

Work is offered in:

Advertising. Keith.
Agriculture. Lashbrook, Koefod.
Contemporary affairs. Lashbrook.
Current newspapers and periodicals. Koefod, Parris.
High school journalism. Medlin.
History and ethics. Medlin.
Home economics. Koefod.
News photography. Lashbrook.
Radio. Lashbrook, Koefod.
Science. Koefod.

FOR GRADUATE CREDIT

351. Research in Industrial Journalism. Credit to be arranged. Each semester and summer.

Prerequisite: At least two courses in this department. Journalism fee charged. Staff.

Work is offered in:

Advertising. Keith.
Agriculture. Lashbrook, Koefod.
Contemporary affairs. Lashbrook.
Current newspapers and periodicals. Koefod, Parris.
High school journalism. Medlin.
History and ethics. Medlin.
Home economics. Koefod.
News photography. Lashbrook.
Radio. Lashbrook, Koefod.
Science. Koefod.

COURSES IN PRINTING

103. Graphic Arts Survey. 2 semester hours. Each semester.
History and art of printing; typography of advertisements and headline display; principles of effective makeup. Prerequisite: Sophomore standing and concurrent registration in Ind. Jour. 104. Journalism fee charged. Amos.

104. Typography Laboratory. 1 semester hour. Each semester.
Typesetting, proofreading, correction of forms as a background for journalism. Three hours of laboratory a week. Prerequisite: Sophomore standing and concurrent registration in Ind. Jour. 103. Journalism fee charged. Amos.

108. Ad Topography I. 2 semester hours. Each semester.
Principles of display and design as applied to advertisements. Six hours of laboratory a week. Prerequisite: Ind. Jour. 104. Journalism fee charged. Amos.

111. Ad Typography II. 2 semester hours. Each semester.
Continuation of Ind. Jour. 108. Six hours of laboratory a week. Prerequisite: Ind. Jour. 108. Journalism fee charged. Amos.

112. Ad Typography III. 2 semester hours. Each semester.
Continuation of Ind. Jour. 111. Six hours of laboratory a week. Prerequisite: Ind. Jour. 111. Journalism fee charged. Amos.

114. Job Composition I. 2 semester hours. Each semester.
Differences in requirements for job composition and ad composition. Six hours of laboratory a week. Prerequisite: Ind. Jour. 104. Journalism fee charged. Amos.

118. Job Composition II. 2 semester hours. Each semester.
Color work, tabular forms, and other job work. Six hours of laboratory a week. Prerequisite: Ind. Jour. 114. Journalism fee charged. Amos.

120. Job Composition III. 2 semester hours. Each semester.
Continuation of Ind. Jour. 118. Six hours of laboratory a week. Prerequisite: Ind. Jour. 118. Journalism fee charged. Amos.

122. Presswork I. 2 semester hours. Each semester.
Practical platen presswork under printing-office conditions. Six hours of laboratory a week. Prerequisite: Ind. Jour. 108 or 114. Journalism fee charged. Amos.

126. Presswork II. 2 semester hours. Each semester.
Continuation of Ind. Jour. 122; mixing inks; color work. Six hours of laboratory a week. Prerequisite: Ind. Jour. 122. Journalism fee charged. Amos.

Mathematics

Professor Stratton
Professor Remick
Professor White
Associate Professor Hyde
Associate Professor Lewis
Associate Professor Munro
Associate Professor Sigley
Associate Professor Fryer
Assistant Professor Janes
Assistant Professor Mossman
Assistant Professor Holroyd
Assistant Professor Daugherty

For a minor in mathematics, the following courses should be completed: 101, 104, 110, 114, and 115; for a minor in statistics, courses 126, 261, 262, and 263.

For a major in mathematics, in addition to the minor, the following courses should be completed: 102, 201, and two courses chosen from the 200 group.

For a major in statistics, in addition to the two minors, the following courses should be completed: 201, 265, and 266. The student should enroll in the Curriculum in Physical Science.

FOR UNDERGRADUATE CREDIT

0. Intermediate Algebra. No credit. Each semester and summer.
Review of elementary algebra; topics preparatory to Math. 104, 107, or 108. Three hours of recitation a week. Staff.

5. Vocational Mathematics. No credit. Each semester and summer.
Arithmetic, algebra, and trigonometry for veterans in short courses. Three hours of recitation a week. Staff.

10. General Mathematics Refresher Course. No credit. Each semester and summer.
A refresher course in mathematics for veterans. Five hours of recitation a week. Staff.

101. Plane Trigonometry. 3 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one and one-half units of high school algebra. Staff.

102. Solid Geometry. 2 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one unit of high-school algebra. Staff.

103. Mathematics in Human Affairs. 3 semester hours. Each semester and summer.
A general cultural course for students who do not take formal mathematics. Staff.

104. College Algebra. 3 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one and one-half units of high-school algebra. Staff.

107. College Algebra A. 5 semester hours. Each semester and summer.
The third semester of high-school algebra and the chief content of Math. 104. Prerequisite: Plane geometry and one unit of high-school algebra. Staff.

108. General Algebra. 5 semester hours. Each semester and summer.
Prerequisite: Plane geometry and one unit of high-school algebra. Not open to students with credit in Math. 104 or 107. For students in the curriculums in Business Administration and Agricultural Administration. Staff.

109. Spherical Trigonometry and Navigation. 3 semester hours. Each semester and summer.
Methods used in piloting, dead-reckoning, and radio navigation. Fundamentals of spherical trigonometry and application to celestial navigation. Prerequisite: Math. 101. Sigley.

110. Plane Analytic Geometry. 4 semester hours. Each semester and summer.
Prerequisite: Math. 101 and 104 or 107. Staff.

114. Calculus I. 4 semester hours. Each semester and summer.
Prerequisite: Math. 110. Staff.

115. Calculus II. 4 semester hours. Each semester and summer.
Prerequisite: Math. 114. Staff

121. Differential Equations for Engineers. 2 semester hours. Each semester and summer.
Prerequisite: Math. 115. Stratton, White, Sigley.

126. Elements of Statistics. 3 semester hours. Each semester.
A basic course in probability and statistics for students of economics, biology, and science. Not open to students who have credit in Educ. 223. White, Fryer.

150. Mathematics of Finance. 3 semester hours. Second semester.
Prerequisite: Econ. 133 and Math. 108. Fryer.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Differential Equations. 3 semester hours. First semester.
Prerequisite: Math. 115. Stratton, White, Munro.

210. Advanced Calculus I. 3 semester hours. First semester.
Prerequisite: Math. 115. White.

213. Advanced Calculus II. 3 semester hours. Second semester.
Prerequisite: Math. 210. White.

231. Higher Mathematics for Engineers I. 3 semester hours. First semester.
Determinants and matrices; infinite series; Fourier's series; multiple, line, and improper integrals; elliptic integrals. Prerequisite: Math. 115. Babcock.

232. Higher Mathematics for Engineers II. 3 semester hours. Second semester.
Continuation of Math. 231, including ordinary and partial differential equations; vector analysis; probability; curve fitting. Prerequisite: Math. 115. Babcock.

233. Fourier's Series. 3 semester hours. Second semester.
Prerequisite: Math. 201. White, Munro, Sigley.

234. Vector Analysis. 3 semester hours. Each semester.
Methods of vector algebra and geometry, with applications, and the elements of tensors. Prerequisite: Math. 115. Babcock.

240. Higher Algebra. 3 semester hours. Each semester and summer.
Material selected from Bocher's Higher Algebra. Prerequisite: Math. 115. Stratton, Munro, Sigley.

241. Theory of Equations. 3 semester hours. First semester.
Prerequisite: Math. 115. Staff.

253. Solid Analytic Geometry. 3 semester hours. Second semester.
Prerequisite: Math. 115. Stratton.

254. Modern Plane Geometry. 3 semester hours. Second semester.
Properties of a triangle and its circles, harmonic ranges and pencils, inversion, poles and polars. Prerequisite: Math. 110. Stratton.

260. Statistics. 3 semester hours. Second semester.
Random sampling, frequency curves, correlation theory, curve fitting, significant differences, and analysis of variance; practice with data from biology, economics, and agronomy. Prerequisite: Math. 126. Fryer.

261. Statistical Methods I. 3 semester hours. First semester.
Development of proficiency in statistical technics; the Chi-square test, t-test, analysis of variance, and linear regression; application to sampling problems in agriculture and biology. Prerequisite: Junior standing. Fryer.

262. Statistical Methods II. 3 semester hours. Second semester.
Further study of analysis of variance; technic and applications of covariance, multiple and curvilinear regression and introduction to designing of experiments. Prerequisite: Math. 261 or consent of the instructor. Fryer.

263. Statistical Methods Laboratory. 1 semester hour. Each semester.
Use of computing machines in dealing with experimental statistics. Three hours of laboratory a week. Prerequisite: Math. 261 or concurrent registration. Charge, $2. Fryer.

264. Sampling Methods. 3 semester hours. Second semester.
Design, mechanics, and analysis of sampling investigations in the fields of economics and biology; stratification; estimation of population values; accuracy of sampling estimates. Prerequisite: Math. 261. Fryer.

265. Probability and Statistics I. 3 semester hours. First semester.
Basic probability and distribution theory used in biology, chemistry, and physics; mathematical expectation; normal, binomial, Poisson, and other distributions; Gamma and Beta functions; applications. Prerequisite: Math. 115. Fryer.

266. Probability and Statistics II. 3 semester hours. Second semester.
Regression method of least squares; curve fitting; applications in analysis of variance and covariance; estimation of population parameter. Prerequisite: Math. 265. Fryer.

298. History of Mathematics. 3 semester hours. Each semester and summer.
Prerequisite: Math. 110. Staff.

299. Topics in Mathematics. Credit to be arranged. Each semester and summer.
Prerequisite: Math. 115. Staff.
Work is offered in:
Analysis. Stratton, White, Sigley.
Applied Mathematics. Babcock.
Differential Equations. Munro.
Geometry. Stratton, Janes.
Statistics. White, Fryer.

FOR GRADUATE CREDIT

301. Theory of Functions of a Complex Variable I. 3 semester hours.
Prerequisite: Math. 201. Stratton, Munro, Sigley.

302. Theory of Functions of a Complex Variable II. 3 semester hours. Second semester.
Prerequisite: Math. 301. Stratton, Munro, Sigley.

306. Theoretical Mechanics. 3 semester hours. First semester.
Prerequisite: Math. 115. Stratton.

310. Integral Equations and Green's Functions. 3 semester hours. Second semester.
Solutions of boundary problems, particularly in elasticity and aerodynamics, by means of integral equations, Green's functions, and partial differential equations. Prerequisite: Math. 201. Sigley.

312. Higher Geometry. 3 semester hours. Second semester.
Linear dependence, homogeneous coördinates, cross ratio, properties of conics, elements of projective geomery. Prerequisite: Math. 254. Stratton.

316. Advanced Differential Equations. 3 semester hours. First semester.
Special topics, such as the equations of Legendre, Bessel, and Ricatti, with applications. Prerequisite: Math. 201. Munro.

331. Research in Mathematics. Credit to be arranged. Each semester and summer.
Prerequisite: At least two courses in this department subsequent to Math. 115. Staff.
Work is offered in:
Analysis. Stratton, White, Sigley.
Applied Mathematics. Babcock.
Differential Equations. Munro.
Geometry. Stratton, Janes.
Statistics. White, Fryer.

Military Science and Tactics

Professor Taylor, CAC, U. S. A.
Assistant Professor Colman, AUS, U. S. A.

All regularly enrolled male students who are citizens of the United States and not physically disqualified are required to take military training three hours a week during their freshman and sophomore years or the eqivalent. Students who enter with 25 hours of advanced credit are excused from the second year of military training; those who enter with 59 hours of advanced credit are excused from all military requirements.

The president of the College acts on all requests for excuse from military training or its postponement. Students excused from military training are assigned an equivalent amount of other college work.

Students who have had military training in a school or college offering military training under an officer of the Army of the United States detailed as professor of military science and tactics may get credit for basic R. O. T. C. courses in Kansas State College. No credit will be given for military training taken by a student under fourteen years of age. All transfers of credit for military training are subject to the approval of the professor of military science and tactics.

An infantry unit and a coast artillery unit of the Reserve Officers' Training Corps have been established in this College.

A laboratory fee of $1 a semester is required of all students assigned to military training.

PERTINENT REGULATIONS OF THE R. O. T. C.

1. Returning Servicemen. The granting of appropriate credit for military or naval service, to be applied in lieu of military training required by the institution as a result of the Act of July 2, 1862 (Morrill or Land-Grant Act), is a matter to be decided entirely by the school or state authorities concerned. However, each student who elects to take advantage of such credit cannot later be enrolled in the Advanced Course, Senior Division, R. O. T. C., unless prior to such enrollment he shall have fulfilled the legal requirement of two academic years of military training in the Senior Division, R. O. T. C. (Basic Course), or the authorized substitute of an equivalent or longer period of military training either in the Junior Division, R. O. T. C., or at the United States Military Academy.

2. Basic Course. (Freshmen, sophomores.) Each student in these classes will be furnished a complete uniform and equipment for his use in the course. The articles remain the property of the United States and must be turned in by each student at the close of each College year or upon withdrawal from the R. O. T. C. Shoes are not furnished. Brown or tan shoes of smooth leather and solid color must be worn with the uniform. If low shoes are worn, brown or tan socks must be worn with them.

To insure the return of this uniform, a deposit of $4 is required of each basic-course student. The deposit will be refunded when the complete uniform is returned to the department in good condition.

*** 3. Advanced Course.** The student who continues in the R. O. T. C. after completing the Basic Course will receive the following:

a. A special uniform allowance.

b. Commutation of subsistence at the rate of 25 cents a day, provided he agrees to complete the Advanced Course, including a special service school. The special service school referred to is without expense to the student. Clothing and subsistence will be furnished and he will be paid at the rate of $50 a month.

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* Discontinued for duration of war.

After graduation he will be eligible for appointment by the President of the United States as a reserve officer of the Army of the United States, and if so appointed, he may, under certain conditions, be appointed and commissioned a regular second lieutenant in the Army of the United States.

c. Because of limitations in electives, the maximum number of hours in advanced R. O. T. C. available toward an undergraduate degree in the several schools is: Agriculture, 6; Engineering and Architecture, 8; Arts and Sciences, 12; Veterinary Medicine, none.

The corps of cadets at present is organized as one regiment with a military band.

FOR UNDERGRADUATE CREDIT

SENIOR DIVISION, R. O. T. C.

BASIC COURSE, INFANTRY

(For students not in the School of Engineering and Architecture or in the curriculums in Industrial Chemistry, Industrial Physics, Physical Science, and Milling Industry.)

101. Infantry I. 1 semester hour. First semester.
Leadership; orientation in military fundamentals; military discipline, courtesies and customs of the service; national defense act and R. O. T. C.; military history and policy; rifle marksmanship; general military organization; weapons. One hour of recitation and two hours of drill a week. Staff.

102. Infantry II. 1 semester hour. Second semester.
Leadership; military organization; map reading; military sanitation and first aid. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 101. Staff.

103. Infantry III. 1 semester hour. First semester.
Leadership; tactical training of infantry soldiers; characteristics of infantry weapons, automatic rifle. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 102. Staff.

104. Infantry IV. 1 semester hour. Second semester.
Leadership; scouting and patrolling; combat principles; technique of rifle fire. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 103. Staff.

ADVANCED COURSE, INFANTRY *

(For students not in the School of Engineering and Architecture or in the curriculums in Industrial Chemistry, Industrial Physics, Physical Science, and Milling Industry.)

109. Infantry V. 3 semester hours. First semester.
Leadership; aerial photograph reading; combat training; defense against chemical warfare. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 104.

110. Infantry VI. 3 semester hours. Second semester.
Leadership; weapons; marksmanship; administration; care and operations of motor vehicles. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 109.

111. Infantry VII. 3 semester hours. First semester.
Leadership; military history and policy; military law; property, emergency procurements and funds; methods of instruction; infantry signal communications; combat training; antiaircraft defense. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 110.

* Discontinued for duration of war.

112. Infantry VIII. 3 semester hours. Second semester.
Leadership; combat orders; tanks; antitank defense; attack, defense and security; combat intelligence; Officers' Reserve Corps Regulations. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 111.

BASIC COURSE, COAST ARTILLERY *

(For students in the School of Engineering and Architecture and in the curriculums in Industrial Chemistry, Industrial Physics, Physical Science, and Milling Industry.)

113. Artillery I. 1 semester hour. First semester.
Leadership; military fundamentals; military sanitation and first aid; coast artillery weapons and materiel; military discipline, courtesies, and customs of the service. One hour of recitation and two hours of drill a week.

114. Artillery II. 1 semester hour. Second semester.
Leadership; organization of the army; organization of the coast artillery; military discipline, courtesies, and customs of the service; coast artillery ammunition, weapons, and materiel; rifle marksmanship. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 113.

115. Artillery III. 1 semester hour. First semester.
Leadership; basic gunnery; fire-control and position-finding for seacoast artillery; basic gunnery for antiaircraft artillery; rigging; map reading. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 114.

116. Artillery IV. 1 semester hour. Second semester.
Leadership; identification of aircraft; operation and maintenance of coast artillery motor transportation; characteristics of naval targets; interior guard duty. One hour of recitation and two hours of drill a week. Prerequisite: Mil. Sc. 115.

ADVANCED COURSE, COAST ARTILLERY*

(For students in the School of Engineering and Architecture and in the curriculums in Industrial Chemistry, Industrial Physics, Physical Science, and Milling Industry.)

117. Artillery V. 3 semester hours. First semester.
Leadership; administration; aerial photograph reading; defense against chemical warfare; fire-control and position-finding for seacoast artillery; coast artillery signal communications; antiaircraft artillery; basic gunnery. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 116.

118. Artillery VI. 3 semester hours. Second semester.
Leadership; basic and applied gunnery; fire-control and position-finding for antiaircraft artillery; rifle and pistol marksmanship. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 117.

119. Artillery VII. 3 semester hours. First semester.
Leadership; mess management; military law; orientation; field-fortifications for coast artillery; gunnery; fire-control and position-finding for AA automatic weapons; property, emergency procurement, and funds. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 118.

120. Artillery VIII. 3 semester hours. Second semester.
Leadership; military history and policy; combat orders and solution of map problems; technique and elementary tactics for seacoast and antiaircraft artillery; mechanization; Officers' Reserve Corps; position-finding and control; antiaircraft searchlights. Two hours of recitation and three hours of drill a week. Prerequisite: Mil. Sc. 119.

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* Discontinued for duration of war.

Modern Languages

Professor Moore
Professor Limper
Associate Professor Crittenden
Associate Professor Pettis
Associate Professor Munro

For a minor, 15 hours in a single language should be completed.

For a major, 30 hours in a single language should be completed, or 27 hours in one language and six in a second language.

Students who have had German, French, or Spanish in high school may not duplicate that work for college credit. One year of a language in high school is, as a rule, equivalent to one semester in college. In doubtful cases, the head of the department should be consulted.

FOR UNDERGRADUATE CREDIT

101. German I. 3 semester hours. Each semester and summer.
Moore, Munro.

102. German II. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 101 or equivalent. Moore, Munro.

111. German III. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 102 or equivalent. Moore, Munro.

112. German IV. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 111 or equivalent. Moore.

137. Scientific German. 4 semester hours. First or second semester.
Prerequisite: Mod. Lang. 102 or equivalent. Munro, Moore.

138. Advanced Scientific German. 2 semester hours. First or second semester.
Prerequisite: Mod. Lang. 137 or equivalent. Munro, Moore.

140. Scientific Russian I. 3 semester hours. First semester.
Prerequisite: Six hours of some other foreign language. Munro.

141. Scientific Russian II. 3 semester hours. Second semester.
Prerequisite: Mod. Lang. 140. Munro.

151. French I. 3 semester hours. Each semester and summer.
Pettis.

152. French II. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 151 or equivalent. Pettis.

161. French III. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 152 or equivalent. Pettis.

162. French IV. 3 semester hours. Each semester.
Prerequisite: Mod. Lang. 161 or equivalent. Pettis.

163. French Composition and Conversation. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 162. Pettis.

176. Spanish I. 3 semester hours. Each semester and summer.
Staff.

177. Spanish II. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 176 or equivalent. Staff.

180. Spanish III. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 177 or equivalent. Staff.

181. Spanish IV. 3 semester hours. Each semester and summer.
Prerequisite: Mod. Lang. 180 or equivalent. Staff.

194. Spanish Composition and Conversation. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 181 or equivalent. Pettis.

FOR GRADUATE AND UNDERGRADUATE CREDIT

209. Schiller. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 112 or equivalent. Moore.

213. Goethe. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 112 or equivalent. Moore.

215. German Drama. 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college German or equivalent. Moore, Munro.

252. French Prose. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 162 or equivalent. Pettis.

257. Seventeenth Century French Drama. 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college French or equivalent. Pettis.

258. Modern French Drama. 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college French or equivalent. Pettis.

275. Spanish Prose. 3 semester hours. First or second semester.
Prerequisite: Mod. Lang. 181 or equivalent. Staff.

280. Spanish Drama. 3 semester hours. First or second semester.
Prerequisite: Fifteen hours of college Spanish or equivalent. Crittenden, Munro.

282. Spanish-American Literature. 3 semester hours. First or second semester.
Prerequisite: Eighteen hours of college Spanish or equivalent. Staff.

299. Problems in Modern Languages. Credit to be arranged. Each semester and summer.
Staff.

Music

Professor Lindquist
Associate Professor Sayre
Associate Professor Downey
Associate Professor Stratton
Assistant Professor Hartman
Assistant Professor Painter
Assistant Professor Jefferson
Assistant Professor Martin
Assistant Professor Pelton
Assistant Professor Jesson
Assistant Professor Grossmann

For a minor, the following courses should be completed: 125, 126, 133, 145, 146, 147, 156 (2 hours), 161 (2 hours), 176 (2 semesters), and 185 (2 semesters).
For a major, a student should enroll in one of the curriculums in music.
Instruction in voice, piano, organ, violin, violoncello, double bass, and other instruments, is given in private lessons. All theoretical subjects are taught in classes.

PRELIMINARY MUSICAL TRAINING

Applicants for freshman standing in the four-year music curriculums must pass an examination over certain requirements, which are as follows:

CURRICULUM IN MUSIC, APPLIED

Voice majors: A voice of superior quality, ability to sing in time and in tune, and a practical knowledge of musical notation.

Piano and Organ majors: A considerable degree of proficiency in the fundamentals of piano technic and in the playing of the easier classics.

Other Instrumental majors: A practicable knowledge of the fundamental technic of playing the instrument in the study of which the student desires to major, and a considerable degree of proficiency in the playing of the easier classics written for that instrument.

CURRICULUM IN MUSIC EDUCATION

School Music majors: A practicable degree of proficiency in the fundamentals of piano technic and sight reading, and the ability to sing in time and in tune.

Band and Orchestra majors: A practicable degree of proficiency in the fundamentals of piano technic.

COURSES IN THE THEORY OF MUSIC

FOR UNDERGRADUATE CREDIT

115. Radio Music Appreciation Programs. 1 semester hour. Each semester and summer.

Program building, and practical experience in planning and presentation of music appreciation programs. One hour of recitation and one hour of laboratory a week. Prerequisite: Mus. 130 or concurrent registration. Grossmann.

118. Music Fundamentals. 2 semester hours. Each semester and summer.

Elementary instruction in the theory of music. Three hours of recitation a week. Not open to students in music curriculums. Sayre.

119. Broadcast Musical Programs. 2 semester hours. Each semester and summer.

Planning and arranging broadcasts of musical programs; copyright law as applied to musical broadcasts; theme, transitional, background, and incidental music; microphone technic applied to music. Three hours of recitation a week. Prerequisite: Sp. 163 or equivalent. Stratton.

125. Theory of Music I. 3 semester hours. Each semester and summer.

Harmony, ear training, and sight singing. Six hours of recitation a week. Stratton, Jesson.

126. Theory of Music II. 3 semester hours. Each semester and summer.

Continuation of Mus. 125. Six hours of recitation a week. Prerequisite: Mus. 125. Stratton, Jesson.

127. Theory of Music III. 3 semester hours. First semester and summer.

Continuation of Mus. 126. Six hours of recitation a week. Prerequisite: Mus. 126. Stratton, Jesson.

128. Theory of Music IV. 3 semester hours. Second semester and summer.

Continuation of Mus. 127. Six hours of recitation a week. Prerequisite: Mus. 127. Stratton, Jesson.

129. Counterpoint, Form and Analysis. 2 semester hours. Each semester and summer.

Melody writing, melodies in simple counterpoint, two-part and three-part inventions, forms in composition, analysis of music of the masters. Three hours of recitation a week. Prerequisite: Mus. 128. Downey.

130. History and Appreciation of Music I. 2 semester hours. First semester and summer.

The three periods in the history of music, the style of music peculiar to each, and musical contact with the great composers. Three hours of recitation a week. Lindquist.

131. History and Appreciation of Music II. 2 semester hours. Second semester and summer.

Continuation of Mus. 130. Three hours of recitation a week. Prerequisite: Mus. 130 or equivalent. Lindquist.

133. Choral Conducting. 1 semester hour. Each semester and summer. Two hours of recitation a week.
Prerequisite: Mus. 118 or equivalent. Lindquist.

134. Instrumental Conducting. 1 semester hour. Each semester and summer. Two hours of recitation a week.
Prerequisite: Mus. 128 and 133. Downey.

136. Instrumentation and Orchestration. 3 semester hours. Each semester and summer.
Instruments of the band and orchestra studied with relation to tone, color, range, and function; simple and familiar compositions scored for ensemble, including full orchestra. Prerequisite: Mus. 129. Downey.

144. School Music I. 3 semester hours. First semester and summer.
Methods and materials for kindergarten, primary grades, elementary grades, rural and small city schools. Prerequisite: Mus. 126. Hartman.

145. School Music II. 2 semester hours. Second semester and summer.
Methods and materials for junior and senior high school. Prerequisite: Mus. 144. Hartman.

146. Orchestral Instruments I. 1 semester hour. Each semester and summer.
Methods of tone production of instruments of the orchestra. Two hours of recitation and one hour of laboratory a week. Fee, $3. Downey, Martin.

147. Orchestral Instruments II. 1 semester hour. Each semester and summer.
Continuation of Mus. 146. Two hours of recitation and one hour of laboratory a week. Fee, $3. Downey, Martin.

148. Orchestral Instruments III. 1 semester hour. Each semester and summer.
Continuation of Mus. 147. Two hours of recitation and one hour of laboratory a week. Fee, $3. Downey, Martin.

149. Methods and Materials for the Studio. 1 semester hour. Each semester.
Methods of teaching fundamental technic; selection of teaching materials, and outlining of courses of study. For students in the Curriculum in Music, Applied; taught in separate divisions for voice, piano, organ, and violin. Two hours of recitation a week. Staff.

150. Orchestral Instruments IV. 1 semester hour. Each semester and summer.
Continuation of Mus. 148. Two hours of recitation and one hour of laboratory a week. Fee, $3. Downey, Martin.

COURSES IN APPLIED MUSIC

153. Instrument. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Downey, Martin.

156. Voice. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Lindquist, Sayre, Grossmann.

158. Violin. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Martin.

161. Piano. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Staff.

163. Violoncello. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Downey.

167. Double Bass. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Downey.

172. Organ. 0 to 2 semester hours; maximum of 16 hours allowed. Each semester and summer.
For fees, see table following Mus. 192. Jesson.

174. Vocal Ensemble. R credit. Each semester and summer. Two hours of laboratory a week.
Elective for students of superior vocal talent. Lindquist, Sayre, Grossmann.

176. Piano Ensemble. R credit. Each semester. One hour of recitation a week.
Required of students enrolled in the music curriculums. Fee, $2. Painter.

178. Instrumental Ensemble. 1 semester hour. Each semester and summer. Three hours of laboratory a week.
Elective for selected students. Downey, Martin.

181. Recital. R credit. Each semester and summer.
For students in the Curriculum in Music, Applied. Staff.

182. Junior Recital. 1 semester hour. Second semester.
A joint solo recital appearance. For students in the Curriculum in Music, Applied. Staff.

184. Senior Recital. 2 semester hours. Second semester.
An individual solo recital appearance. For students in the Curriculum in Music, Applied. Staff.

185. Ensemble. R credit. Each semester.
Work may be taken in Choral Ensemble, Orchestra, or Band. Two hours of laboratory a week. For band; Charge, 50c, deposit, $2. Staff.

Choral Ensemble. Weekly rehearsals, all special rehearsals, and public performances. Prerequisite: A voice of good quality, a knowledge of musical notation, and the ability to sing in time and in tune. Lindquist, Sayre, Grossman.

Membership in both the College Chorus and the Men's Glee Club or the College Chorus and the Women's Glee Club.

Men's Glee Club. Membership, by competitive tryouts, is open to the entire student body. Lindquist.

Women's Glee Club. Membership, by competitive tryouts, is open to the entire student body. Sayre, Grossmann.

Orchestra. Weekly rehearsals. Membership, by competitive tryouts, is open to the entire student body. Downey.

Band. Weekly rehearsals. Membership, by competitive tryouts, is open to the entire student body. Downey, Martin.

187. Practice Teaching in Applied Music. R credit. First seemster.
Practice teaching in private classes for students in the Curriculum in Music, Applied. One hour of recitation a week. Staff.

192. Problems in Music. Credit to be arranged. Each semester and summer.
Prerequisite depends upon problem chosen. Staff.

FEES IN MUSIC

Course			
Two lessons each week for a semester:			
Voice	$35.00	$30.00*	$25.00†
Piano	35.00	30.00*	25.00†
Organ	35.00	30.00*	25.00†
Violin	35.00	30.00*	25.00†
Violoncello	35.00	30.00*	25.00†
Other orchestral instruments	35.00	30.00*	25.00†
One lesson each week for a semester:			
Voice	17.50	15.00*	12.50†
Piano	17.50	15.00*	12.50†
Organ	17.50	15.00*	12.50†
Violin	17.50	15.00*	12.50†
Violoncello	17.50	15.00*	12.50†
Other orchestral instruments	17.50	15.00*	12.50†

Piano rent, one hour daily—$3 a semester.

Piano rent, two hours daily—$5 a semester.

Organ rent, one hour daily—$10 a semester.

* † Fees for grade school and high school students; thirty-minute and twenty-minute lessons, respectively.

Physical Education and Athletics

Professor Ahearn
Professor Saum
Professor Washburn
Professor Adams
Professor Geyer
Associate Professor Haylett
Assistant Professor Moll
Assistant Professor Gardner
Assistant Professor Cochrane
Assistant Professor Lyman
Assistant Professor Kriehn
Instructor Patterson
Instructor Thompson
Instructor Schutte
Instructor Evans
Instructor Knorr
Instructor Socolofsky
Instructor Myers

Each student receives a physical examination before enrollment in courses in the Department of Physical Education and Athletics. Students should take courses 103 for men and 151 for women to satisfy the physical education requirement. Transfer students who enter this college with 15, 25, 44, or 59 hours of credit are excused from one, two, three, or four semesters, respectively, of Phys. Ed. 103 or 151.

For a major, a student should enroll in one of the curriculums in Physical Education.

COURSES IN PHYSICAL EDUCATION FOR MEN

FOR UNDERGRADUATE CREDIT

Only one deposit is required from any student in one semester with the exception of course 113.

103. Physical Education M. No credit. Each semester and summer.
Activities offered: Athletic sports, apparatus work, boxing, calisthenics, individual physical education, swimming, tumbling, and wrestling. Deposit, $4. Staff.

107. Introduction to Physical Education. 1 semester hour. First semester.
Introductory survey of the field and study of the principles of health and physical education. Washburn.

113. First Aid and Massage. 3 semester hours. Second semester and summer.
Standard and advanced Red Cross First Aid certificates given for successful completion of work. Principles and practice of massage, taping, and care of minor athletic injuries. Prerequisite: Zoöl. 123. Deposit, 75c. Moll, Evans, Washburn.

114. Major Sports I. 3 semester hours. Second semester.
Rules, theory and practice, and methods of coaching football and baseball. One hour of recitation and six hours of laboratory a week. Deposit, $4. Ahearn, Adams, Socolofsky.

115. Major Sports II. 3 semester hours. Second semester.
Rules, theory and practice, and methods of coaching basketball and track and field sports. One hour of recitation and six hours of laboratory a week. Deposit, $4. Gardner, Haylett, Knorr.

118. Community Health. 1 semester hour. Summer.
The control of communicable disease; food, water, waste, and other sanitary problems; ventilation, heating, and lighting; public health procedures. Washburn.

119. Personal Hygiene. 2 semester hours. First semester and summer.
Moll, Evans, Washburn.

120. Swimming M. 1 semester hour. Second semester and summer.
Theory and practice of various swimming strokes, diving, treading water, and floating. Methods of teaching swimming. Three hours of laboratory a week. Prerequisite: One semester of swimming or passing Red Cross intermediate swimmer's test. Deposit, $4. Moll, Evans.

124. Physical Diagnosis and Prescription. 3 semester hours. First semester.
Methods of giving health examinations; postural deviations; corrective exercise. Prerequisite: Phys. Ed. 132. Washburn.

132. Kinesiology M. 2 semester hours. Second semester.
Body movements analyzed; principles involved applied to teaching of physical education. Prerequisite: Zoöl. 123. Thompson, Knorr.

134. Practice Teaching in Physical Education. 2 semester hours. Second semester.
Supervised students assist in physical education classes and officiate in intramural games. Six hours of laboratory a week. Deposit, $4. Staff.

135. Physical Education Activities I. 2 semester hours. First semester.
Practice and teaching methods of soccer, volleyball, gymnasium games; boxing and wrestling. Six hours of laboratory a week. Deposit, $4. Thompson, Patterson, Knorr.

138. Physical Education Activities II. 2 semester hours. Second semester.
Theory and practice of calisthenics, the gymnastic lesson, and tumbling. Six hours of laboratory a week. Deposit, $4. Thompson, Knorr.

139. Physical Education Activities III. 2 semester hours. First semester.
Graded exercises on gymnasium apparatus, rhythms, and pyramids. Six hours of laboratory a week. Deposit, $4. Thompson, Knorr.

142. Public School Program in Physical Education. 2 semester hours. Second semester.
Educational, health, and recreative significance and content of the school program; types of activities to be used in grades and high school. Prerequisite: Senior standing. Washburn.

143. History of Physical Education. 2 semester hours. First semester.
Prerequisite: Phys. Ed. 107. Moll, Evans.

145. Nature and Function of Play. 2 semester hours. First semester.
Theoretical explanations of play; age and sex characteristics which influence play; values of play to individual and commmunity. Prerequisite: Educ. 184. Washburn.

146. Organization and Administration of Health and Physical Education. 3 semester hours. First semester.
Prerequisite: Junior standing. Washburn.

147. Community Hygiene. 2 semester hours. Second semester.
Production, improvement, maintenance, and defense of public health. Prerequisite: Phys. Ed. 119. Moll, Evans.

149. Teaching Health. 2 semester hours. Second semester.
Materials and methods of teaching health at the junior and senior high school level. Prerequisites: Phys. Ed. 147, Zoöl. 123 and 221. Moll, Evans.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Community Recreation. 2 semester hours. Second semester and summer.
A study of the organization and activities of club work for youth, camping, playgrounds, and indoor recreation centers. Prerequisite: Phys. Ed. 145, Educ. 184. Washburn.

205. Tests and Measurements in Physical Education. 3 semester hours. First semester and summer.
A study of capacity, achievement, knowledge, and skill tests, for purposes of classification and measurement of school progress. Prerequisite: Educ. 223. Washburn.

207. Physiology of Exercise. 2 semester hours. First semester and summer.
Effects of exercise on the tissues, systems, and organs of the body. Prerequisite: Zoöl. 221. Moll, Evans.

209. Supervision of Physical Education. 2 semester hours. Second semester and summer.
A study of the objectives, organization, and methods of supervision for elementary and secondary schools. Prerequisite: Phys. Ed. 146, Educ. 163. Washburn.

211. Advanced Methods of Teaching Physical Education. 2 semester hours. Second semester and summer.
Prerequisite: Phys. Ed. 142 or equivalent. Thompson, Knorr.

213. Administration of Physical Education in Colleges and Universities. 2 semester hours. First semester and summer. Washburn.

215. Administration of School Health Education Program. 2 semester hours. First semester and summer.
A study of the organization and administration of health service, health instruction, and health environment for primary and secondary schools; health councils. Prerequisite: Phys. Ed. 149. Moll, Evans.

217. Curriculum Construction in Physical Education. 2 semester hours. Second semester and summer.
A study of materials, problems, and guiding principles involved in curriculum construction. Prerequisite: Phys. Ed. 142 or equivalent. Moll, Evans.

FOR GRADUATE CREDIT

302. Research in Physical Education. Credit to be arranged.
Prerequisite: Variable, depending on problem chosen. Staff.

COURSES IN PHYSICAL EDUCATION FOR WOMEN

Only one deposit is required from any student in one semester.

Recreational swimming is offered on Tuesdays and Thursdays at 5 o'clock for those who are registered in the college. Deposit, 50c each semester.

FOR UNDERGRADUATE CREDIT

151. Physical Education W. No credit. Required. Each semester and summer.

Activities offered: Archery, basketball, bowling, folk and tap dancing, golf, hockey, individual and Danish gymnastics, modern dance, recreational sports, rifle, soccer, softball, social dancing, swimming, and tennis. Deposit, $2.50. Staff.

154. Fundamental Rhythms. 2 semester hours. First semester.

Body rhythm, fundamentals of music, and percussion accompaniment for rhythmic activities. One hour of recitation and three of laboratory a week. Deposit, $2.50. Kriehn.

157A. General Technic I. 2 semester hours. First semester.

Theory and practice of self-testing activities. One hour of recitation and three hours of laboratory a week. Deposit, $2.50. Lyman.

157B. General Technic II. 2 semester hours. Second semester.

Theory and practice of tumbling and recreational sports. One hour of recitation and three hours of laboratory a week. Deposit, $2.50. Lyman.

157C. General Technic III. 2 semester hours. First semester.

Methods of teaching hockey, soccer, speedball, and fieldball. One hour of recitation and three hours of laboratory a week. Prerequisite: Ability to play hockey and soccer. Deposit, $2.50. Geyer.

157D. General Technic IV. 2 semester hours. Second semester.

Methods of teaching basketball, softball and volleyball. One hour of recitation and three of laboratory a week. Prerequisite: Ability to play basketball, softball, and volleyball. Deposit, $2.50. Geyer.

157E. General Technic V. 2 semester hours. First semester.

Methods of teaching tennis, golf and Danish gymnastics. One hour of recitation and three of laboratory a week. Prerequisite: Knowledge of tennis, golf, and Danish gymnastics. Deposit, $2.50. Geyer.

157F. General Technic VI. 2 semester hours. Second semester.

Methods of teaching child rhythms and folk dancing. Six hours of laboratory a week. Prerequisite: Physical Education 154 and one-half semester each of folk dancing and tap dancing. Deposit, $2.50. Kriehn.

157G. General Technic VII. 2 semester hours. First semester.

One hour of recitation and three of laboratory a week. Prerequisite: A semester each of beginning and intermediate modern dance. Deposit, $2.50. Kriehn.

157H. General Technic VIII. 2 semester hours. Second semester.

Methods of teaching swimming and archery. One hour of recitation and three of laboratory a week. Prerequisite: A semester each of beginning and intermediate swimming; one-half semester of archery. Deposit, $3.50. Saum, Lyman, Geyer.

159. First Aid. 2 semester hours. Each semester and summer.

Prevention of accidents and the treatment of injuries in an emergency. Upon satisfactory completion of this course, a certificate is awarded by the American Red Cross and the holder is in line for consideration as an instructor in first aid. Not open to students in the curriculums in Physical Education.

162. Principles and Philosophy of Physical Education. 3 semester hours. First semester.
Aims and objectives of physical education, historical development, relation to general education, analysis of programs and methods. Prerequisite: Sophomore standing. Lyman.

164. Clog and Character Dancing W. 1 semester hour. Summer.
Six hours of laboratory a week for eight week session. Deposit, $2.50.

165. Tumbling, Pyramids, and Stunts W. 1 semester hour. Summer.
Six hours of laboratory a week for eight-week session. Deposit, $2.50.

166. Intramural Athletics for Women W. 1 semester hour. Summer.
This course is offered for teachers who direct intramural activities. Types and methods of conducting intramural athletics in high schools will be considered.

167. Camp Craft W. 1 semester hour. Summer.
Fire building, outdoor cooking, day and overnight trips, and handicraft. Lectures, reports, and practical work.

168. Games for Grades and High School. 2 semester hours. Summer.
Methods of teaching games in public schools suitable for recess, noon and after-school periods. Two hours of recitation and six hours of laboratory a week for eight-week session. Deposit, $2.50.

169. Physical Education in Small Schools. 2 semester hours. Summer.
Not open to students in physical education curriculums. Practical work for women not professionally trained in physical education. Two hours of recitation and six hours of laboratory a week for eight-week session. Deposit, $2.50.

174. Health Examinations and First Aid. 3 semester hours. First semester.
Methods of giving health examinations, analysis of normal body mechanics, postural deviations; first aid emergency treatment. Two hours of recitation and three hours of laboratory a week. Prerequisite: Phys. Ed. 184 and Zoöl. 123 and 221. Deposit, $2.50. Lyman.

175. Therapeutics and Massage. 3 semester hours. Second semester.
Postural defects studied and exercises given for correction of each; general and local massage practiced for cases which can be treated by the Department of Physical Education. Two hours of recitation and three of laboratory a week. Prerequisite: Phys. Ed. 174 and 184 and Zoöl. 123. Deposit, $2.50. Lyman.

176. Organization and Administration of Physical Education W. 2 semester hours. Second semester.
Administrative policies of departments of physical education; the staff, activities, basic principles; construction, equipment, and care of plant. Prerequisite: Phys. Ed. 157A to 157G, 179, and 188. Saum, Geyer.

177. Playground Management and Games. 3 semester hours. First semester.
Organization and administration of playground activities and equipment; history of the playground movement; types of games suitable for different age periods; practice teaching in elementary schools. Two hours of recitation and three hours of laboratory a week. Deposit, $2.50. Kriehn.

178. Folk Dancing W. 1 semester hour. Summer.
Singing games, rhythms, and folk dancing for elementary and secondary schools. Six hours of laboratory a week for eight-week session. Deposit, $2.50.

179. Health Teaching in High School. 3 semester hours. First semester.
Subject matter and methods of presentation of health education; integration with general courses. Prerequisite: Child Welf. 101. Saum, Geyer.

181. Health and Safety Education W. 2 semester hours. Summer.
Organization of material pertaining to health and hygiene, safety and accident prevention, as recommended for the schools of Kansas.

184. Kinesiology W. 2 semester hours. Second semester.
Mechanics of movement; body movements analyzed and principles involved applied to the teaching of physical education. Prerequisite: Zoöl. 123. Geyer.

187. Technic of Basketball, Softball and Volleyball. 1 semester hour. Summer.
Rules, duties of officials, organization of squads and teams, equipment, methods of coaching and conducting tournaments. Six hours of laboratory a week for eight-week session. Deposit, $2.50.

188. Teaching and Adaptation of Physical Education. 3 semester hours. First semester.
Organization of physical education material for a progressive program in elementary schools, and junior and senior high schools; teaching methods to achieve desired aims of education. Prerequisites: Phys. Ed. 157A to 157F and 177. Lyman.

191. Recreational Leadership W. 2 semester hours. Second semester.
Principles and methods of organizing communities for leisure activities. Lyman.

198. Group Recreation. 2 semester hours. Summer.
Selection and organization of recreation for men and women, for class, noon hour, or extracurricular activities. Deposit.

COURSES FOR MEN AND WOMEN

FOR GRADUATE AND UNDERGRADUATE CREDIT

298. Problems in Physical Education. Credit to be arranged.
Prerequisite: Variable, depending on problem chosen. Staff.

Physics

Professor Cardwell
Professor Hudiburg
Professor Raburn
Professor Floyd
Professor McMillen
Associate Professor Brackett
Associate Professor Lyon
Associate Professor Chapin
Associate Professor Allen
Associate Professor Whitcomb
Assistant Professor Maxwell
Assistant Professor Avery
Instructor Crawford

For a minor, the following courses should be completed: 102, 103 (or 105, 106), 243, 244, 251, and 255.

For a major, the student should enroll in the Curriculum in Industrial Physics, and prospective teachers should enroll in the Curriculum in Physical Science.

FOR UNDERGRADUATE CREDIT

102. General Physics I. 4 semester hours. Each semester and summer.
Prerequisite: Math 101. Mechanics, heat, and sound. 3 hours of recitation and 3 hours of laboratory a week. Charge, $4. Staff.

103. General Physics II. 4 semester hours. Each semester and summer.
Prerequisite: Physics 102. Magnetism, electricity, and light. 3 hours of recitation and 3 hours of laboratory a week. Charge, $4. Staff.

105. Engineering Physics I. 5 semester hours. Each semester and summer.
Prerequisite: Math 101. Mechanics, heat, and sound for technical students. 4 hours of recitation and 3 hours of laboratory a week. Charge, $4. Staff.

106. Engineering Physics II. 5 semester hours. Each semester and summer. Prerequisite: Physics 105. Magnetism, electricity, and light for technical students. 4 hours of recitation and 3 hours of laboratory a week. Charge, $4. Staff.

109. Household Physics. 4 semester hours. Each semester and summer. Physical laws and principles involved in household appliances. 3 hours of recitation and 3 hours of laboratory a week. Charge, $4. Avery, Hudiburg.

134. Agricultural Physics. 3 semester hours. Each semester and summer. Fundamental principles as related to agriculture. Required of students in agriculture who enter without high-school physics. Brackett.

141. Descriptive Astronomy. 3 semester hours. Each semester. Babcock.

146. Introductory Meteorology. 3 semester hours. Each semester. Weather phenomena and principles of forecasting; climatic factors; relation of weather studies to agriculture, general science, and physiography. Hudiburg.

151. Photography. 2 semester hours. Each semester and summer. Chemical and physical principles involved in photography; practice in making good negatives and prints. 1 hour of recitation and 3 hours of laboratory a week. Charge, $6. Hudiburg, Chapin.

165. General Physics Refresher Course. 6 semester hours or 8 semester hours. Summer.

A refresher course in general college physics for teachers in secondary schools. 4 hours of recitation and 6 hours of laboratory a week, for 6 semester hours of credit, or 6 hours of recitation and 6 hours of laboratory a week for 8 semester hours of credit.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Laboratory Technic and Apparatus Design. 1 or 2 semester hours. Prerequisite: Physics 103 or 106. Glass blowing and shopwork designed to meet the needs of the individual student. Charge, $3. Hudiburg.

205. Applied X-Ray. 3 semester hours. Prerequisite: Physics 103, 106, or 108. Radiology, theory of short waves and of the equipment used in production; use and operation of X-ray equipment; exposures and development of X-ray plates and films. 2 hours of recitation and 3 hours of laboratory a week. Charge, $3. McMillen, Hudiburg.

206. Synoptic Meteorology. 3 semester hours. Each semester and summer. Prerequisite: Math. 115, Physics 103 or 106, and 146.

217. Geophysics. 3 semester hours. Prerequisite: Physics 103 or 106. Theory of the field work in gravitational, magnetic, electrical, seismic, radioactive, and temperature surveys. Cardwell, Lyon.

220. Applied Spectroscopy. 3 semester hours. Prerequisite: Chem. 104 or 110 and Physics 103 or 106. Spectrographic methods for detecting, qualitatively and quantitatively, chemical constituents of minerals, metals, and biological specimens. 2 hours of recitation and 3 hours of laboratory a week. Charge, $3. McMillen.

227. Mechanics. 3 semester hours. Prerequisite: Math. 115 and Physics 102 or 105. Theoretical mechanics by methods of the calculus with an introduction to generalized coördinates. Cardwell, McMillen.

228. Mechanics Laboratory. 1 or 2 semester hours. Prerequisite: Physics 227 or concurrent registration. Charge, $3. Cardwell, McMillen.

238. Heat. 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106. Whitcomb.

239. Heat Laboratory. 1 semester hour.
Prerequisite: Physics 238 or concurrent registration. Charge, $3. Whitcomb.

240. Sound. 3 semester hours.
Prerequisite: Math. 115 and Physics 102 or 105. Floyd, Chapin.

243. Light. 3 semester hours.
Prerequisite: Math. 114 and Physics 103 or 106. Cardwell, Chapin.

244. Light Laboratory. 1 semester hour.
Prerequisite: Physics 243 or concurrent registration. Charge, $3. Cardwell, Chapin.

251. Electricity and Magnetism. 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106. Electricity and magnetism by methods of calculus. Lyon.

255. Electricity and Magnetism Laboratory. 1 semester hour.
Prerequisite: Physics 251 or concurrent registration. Charge, $3. Lyon.

256. Electronic Physics. 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106. 2 hours recitation and 3 hours laboratory a week. Charge, $3. Lyon, Allen.

270. Atomic Physics. 3 semester hours.
Prerequisite: Math. 115 and Physics 103 or 106. Contemporary theories and problems. Cardwell, McMillen, Lyon.

297. Problems in Physics. Credit to be arranged.
Prerequisite: Physics 103 or 106. Staff.
Work is offered in:
Electricity. Lyon, Allen.
Electronics. Cardwell, Allen.
Light. Cardwell.
Photography. Hudiburg, Chapin.
Sound. Floyd, Chapin.
Spectroscopy. McMillen, Whitcomb.

299. Colloquium in Physics. R.
Required of graduate majors and undergraduate majors. Staff.

FOR GRADUATE CREDIT

302. Introduction to Theoretical Physics I. 3 semester hours.
Prerequisite: Math. 201 and Physics 227. Cardwell, McMillen.

303. Introduction to Theoretical Physics II. 3 semester hours.
Prerequisite: Physics 302. Continuation of Physics 302. Cardwell, McMillen.

305. Quantum and Wave Mechanics. 3 semester hours.
Prerequisite: Math. 201 and Physics 103 or 106. McMillen.

310. General Thermodynamics. 3 semester hours.
Prerequisite: Math. 201 and Physics 238. Cardwell, Chapin.

313. Kinetic Theory of Gases. 3 semester hours.
Prerequisite: Math. 201 and Physics 238. Floyd.

317. X-Ray. 3 semester hours.
Prerequisite: Math. 201 and Physics 103 or 106. Allen.

390. Research in Physics. Credit to be arranged.
Prerequisite: At least two courses in this department. Staff.

Work is offered in:

Electricity. Lyon, Allen.
Electronics. Cardwell, Allen.
Light. Cardwell.
Photography. Hudiburg, Chapin.
Sound. Floyd, Chapin.
Spectroscopy. McMillen, Whitcomb.

Speech

Professor Hill
Professor Heberer
Associate Professor Troutman
Assistant Professor Webster
Assistant Professor Hoover

For a major in general speech, the following courses should be completed: 111, 101, 102, 108, 110, 121, 126, 138, 145, 165, 222, 225, 226, 207 or 209, and Educ. 202.

For a major in radio, the following courses should be completed: 163, 165, 167, 231, 240, 243; 5 hours from 233, 244, and 290; Ind. Journ. 162, and 179. Option for radio majors, for women: Gen. Home Econ. 145 or 146, and 5 hrs. from Group 8; for men: 9 hrs. from Group 8. Radio majors substitute Music 119 for Music 131.

For a major in dramatics, the following courses should be completed: 102, 145, 147, 150, 152, 207, 208, 209, 210, 231, and 290, plus 6 additional hours of Speech.

All students who take courses designated "Radio fee charged," pay a charge of $2 a semester. Only one radio fee is charged a student in a given semester.

FOR UNDERGRADUATE CREDIT

101. Oral Interpretation. 2 semester hours. Each semester and summer.
Attainment of some proficiency in the art of reading aloud. Charge, $1. Hill, Webster, Troutman.

102. Dramatic Reading. 2 semester hours. Second semester.
Advanced study and application of the principles of oral interpretation to platform reading. Prerequisite: Sp. 101. Troutman, Webster, Hoover.

107. Public Speaking. 2 semester hours. Each semester and summer.
Practical public speaking of the extempore type. Prerequisite: Junior standing. Charge, $1. Staff.

108. Extempore Speech II. 2 semester hours. Each semester and summer.
Sp. 107 continued, with special attention to illustrative material. Prerequisite: Sp. 107. Staff.

110. Elements of Phonetics. 2 semester hours. First semester.
Charge, $1. Hoover.

111. Oral Communications. 2 semester hours. Each semester and summer.
Selection and outlining of material with special emphasis on logic and with oral presentation practice. Coördinated with Written Com. I and II. Staff.

121. Argumentation and Debate. 2 semester hours. Second semester.
Prerequisite: Sp. 107. Hill, Webster.

123. Intercollegiate Debate I. 2 semester hours. Each semester.
Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 121. Hill, Webster.

124. Intercollegiate Debate II. 2 semester hours. Each semester.
Open only to members of the intercollegiate debate squads. Prerequisite: Sp. 123. Hill, Webster.

126. Parliamentary Procedure. 1 semester hour. Second semester.
Hill.

138. Public Speaking for Teachers. 1 semester hour. Second semester and summer.
Hill, Troutman.

142. Oratorical Contest. 2 hours. Each semester.
Hill.

144. Dramatic Participation. 1 or 2 hours. Each semester and summer. Prerequisite: Junior standing. Hoover.

145. Acting and Rehearsal I. 2 semester hours. First semester and summer.
Fundamentals of acting, using Kansas State Players productions as laboratory. One hour of recitation and three of laboratory a week. Charge, $1. Hoover.

147. Elementary Stagecraft and Lighting. 2 semester hours. First semester and summer.
Function and operation of scenery; study and applications of stage lighting. Hoover.

150. Development of the Theater I. 2 semester hours. First semester.
The theater to the end of the nineteenth century. Troutman and Hoover.

152. Development of the Theater II. 2 semester hours. Second semester.
The modern and the contemporary theater. Troutman and Hoover.

163. Survey of Braodcasting. 2 semester hours. First semester.
Survey of radio industry; social importance of broadcasting. Prerequisite: Sp. 111. Radio fee charged. Heberer.

165. Radio Spech. 2 semester hours. Each semester.
Training in voice and diction for broadcasting. One hour of recitation and three hours of laboratory a week. Prerequisite: Consent of instructor. Radio fee charged. Heberer.

167. Radio Writing. 3 semester hours. Each semester.
Preparation of informative programs. Prerequisite: Sp. 107. Radio fee charged. Heberer.

168. Radio Program Participation. 1 semester hour. Each semester.
Three hours of laboratory a week. Prerequisite: Sp. 165 or consent of instructor. May not be taken for more than four semesters for credit. Radio fee charged. Heberer, Webster.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Advanced Phonetics. 4 semester hours. Second semester.
Three hours of recitation and three hours of laboratory a week. Prerequisite: Sp. 101, 107, and 110. Hoover.

207. Dramatic Production I. 2 semester hours. Each semester and summer.
Theory of and practice in fundamentals of acting and direction. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 102. Charge, $1. Hoover.

208. Dramatic Production II. 2 semester hours. Each semester and summer.
Projects in direction and stagecraft. Six hours of laboratory a week. Prerequisite: Sp. 207. Charge, $1. Hoover.

209. Acting and Rehearsal II. 2 semester hours. Second semester and summer.
Characterization, interpretation, voice, pantomime, and ensemble. One hour of recitation and three hours of laboratory a week. Prerequisite: Sp. 145. Charge, $1. Hoover.

210. Advanced Lighting and Scenic Design. 2 semester hours. Second semester and summer.
Problems in technical production, design in scenery and lighting. Prerequisite: Sp. 147. Hoover.

222. Advanced Debate. 2 semester hours. First semester.
Advanced study of and participation in the methods of persuasion in public discussion. Prerequisite: Sp. 121. Hill, Webster.

225. Public Program. 2 semester hours. Second semester and summer.
Planning, building, and presenting nonradio public programs. Prerequisite: Sp. 107. Hill, Troutman.

226. Public Discussion. 2 semester hours. First semester.
Symposiums, forums, roundtables, panel discussions of political, social, and economic trends. Hill, Troutman.

231. Radio Production I. 2 semester hours. Each semester.
Program planning and direction. One hour of recitation and three hours of laboratory a week. Prerequisite: Mus. 119 and Sp. 162 and 167. Radio fee charged. Heberer.

233. Radio Production II. 2 semester hours. Each semester.
Continuation of Sp. 231. Prerequisite: Sp. 231 and consent of instructor. Radio fee charged. Heberer.

240. Radio Programming. 2 semester hours. Second semester and summer.
Planning and development of radio programs and schedules. Prerequisite: Sp. 231. Radio fee charged. Heberer.

243. Radio Continuity I. 3 semester hours. First semester.
Preparation of dramatized programs. Prerequisite: Sp. 167. Radio fee charged. Heberer.

244. Radio Continuity II. Three semester hours. Each semester.
Continuation of Sp. 243. Prerequisite: Sp. 243 and consent of instructor. Radio fee charged. Heberer.

290. Problems in Speech. Credit to be arranged. Each semester and summer.
Prerequisite: Sp. 108 or 167. Staff.
Work is offered in:
Debate. Hill, Webster.
Oratory. Hill.
Phonetics. Hoover.
Radio. Heberer.
Theater. Heberer, Hoover.

Zoölogy

Professor Ackert
Professor Nabours
Professor Harman
Professor Herrick
Professor Wimmer
Associate Professor Harbaugh
Associate Professor Goodrich
Assistant Professor Ameel
Instructor Lockhart
Instructor Petri
Instructor Guhl
Graduate Research Assistant Riedel

The courses in Zoölogy, which give fundamental knowledge of the structures, functions, development, and relations of animals to man, afford training that is basic for professional workers in agriculture, home economics, veterinary medicine, and the arts and sciences and their applied fields.

For a major, the student should complete at least nineteen credit hours chosen from the 200 group.

For a minor, the student should take 105 and nine credit hours chosen from the 200 group.

FOR UNDERGRADUATE CREDIT

105. General Zoölogy. 5 semester hours. Each semester and summer school. Three hours of recitation and six hours of laboratory a week. Charge, $3. Staff.

123. Human Anatomy. 5 semester hours. First semester.
Prerequisite: Zoöl. 105. General anatomy studied by means of dissectable models, skeletons, and charts. Three hours of recitation and six hours of laboratory a week. Charge, $3. Wimmer.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Problems in Zoölogy. Credit to be arranged. Each semester and summer school.
Charge, $2 per credit hour. Staff.
Work is offered in:

Bird Study. Goodrich.
Cytology and Embryology. Harman.
Ecology. Harbaugh.
Endocrinology. Herrick.
Heredity. Nabours.
Histology. Lockhart, Goodrich.
Parasitology. Ackert.
Physiology. Wimmer.
Protozoölogy. Ameel.
Wild Life Conservation. Harbaugh.
Zoölogical Technic. Petri, Ameel.

205. Field Zoölogy. 2 or 3 semester hours. Second semester and summer school.
Prerequisite: Zoöl. 105. Habitat, distribution, and relationship of animals. One hour of recitation and three hours of laboratory a week or one hour of recitation and six hours of laboratory a week. Charge, $3. Harbaugh.

206. Zoölogical Technic. 1 or 2 semester hours. Each semester and summer school.
Prerequisite: Zoöl. 105. Methods and processes in preparation of microscopical slides; principles of photomicrography. Charge, $3. Petri, Ameel.

208. Animal Parasitology. 3 semester hours. First semester.
Prerequisite: Zoöl. 105. Biology, pathology, and phrophylaxis of the principal external and internal parasites of the domestic animals. Two hours of recitation and three hours of laboratory a week. Charge, $2. Ackert, Ameel.

209. Principles of Parasitology. 2 semester hours. First semester.
Prerequisite: Zoöl. 105. Principles, origin, history, and theories of animal parasitism. Ackert.

210. Invertebrate Zoölogy. 3 semester hours. First semester and summer school.
Prerequisite: Zoöl. 105. Essentials of structure, function, classification, and phylogeny of the invertebrates. One hour of recitation and six hours of laboratory a week. Charge, $3. Goodrich.

214. Cytology. 4 semester hours. First semester.
Prerequisite: Zoöl. 105. Cells, chromosomes, and heredity. Two hours of recitation and six hours of laboratory a week. Charge, $3. Harman.

216. Heredity and Eugenics. 2 semester hours. Each semester.
Prerequisite: Zoöl. 105. Human inheritance and the interactions of nature and heredity. Nabours.

219. Embryology. 4 semester hours. Each semester and summer school.
Prerequisite: Zoöl. 105. Physiology of reproduction and developmental

anatomy of mammals, with special reference to man. Three hours of recitation and three hours of laboratory a week. Charge, $3. Harman.

220. Advanced Embryology. 4 semester hours. Second semester and summer school.
Prerequisite: Zoöl. 219. Two hours of recitation and six hours of laboratory a week. Charge, $3. Harman.

221. Human Physiology. 4 semester hours. Each semester and summer school.
Prerequisite: Chem. 101 or 110 and Zoöl. 105. Functions of various organ systems of the body. Three hours of recitation and three hours of laboratory a week. Charge, $3. Wimmer, Lockhart, Ameel.

222. General Physiology. 3 semester hours. First semester and summer school.
Prerequisite: Chem. 122 and Zoöl. 105. A study of the nature and mechanism of living matter. Two hours of recitation and three hours of laboratory work. Charge, $3. Wimmer.

223. Protozoölogy. 3 semester hours. Second semester.
Prerequisite: Zoöl. 105. Taxonomy, morphology, and biology of the free living and parasitic protozoa. Two hours of recitation and three hours of laboratory a week. Charge, $2. Ameel.

225. Zoölogy and Entomology Seminar. 1 semester hour. Each semester.
Prerequisite: Zoöl. 105. Staff.

227. Genetics Seminar. 1 semester hour. Each semester.
Prerequisite: Zoöl. 105. Nabours, Warren, Ibsen.

228. Human Parasitology Recitation. 3 semester hours. Second semester.
Prerequisite: Zoöl. 105. Ackert.

229. Human Parasitology Laboratory. 1 semester hour. Second semester.
Prerequisite: Zoöl. 105. Three hours of laboratory a week. Charge, $3. Ackert.

240. Taxonomy of Parasites. 2 semester hours. Second semester and summer school.
Prerequisite: Zoöl. 208 or 218. One hour of recitation and three hours of laboratory a week. Charge, $2. Ackert.

244. Bird Study. 3 semester hours. Second semester, or 2 semester hours, summer school.
Prerequisite: Zoöl. 105. Lecture, laboratory, and field studies in identification and adaptations of birds. Two hours of recitation and three hours of laboratory a week the second semester or one hour of recitation and three hours of laboratory a week summer school. Charge, $2. Goodrich.

246. Comparative Anatomy of Vertebrates. 4 semester hours. Second semester.
Prerequisite: Zoöl. 105. Two hours of recitation and six hours of laboratory a week. Charge, $3. Herrick, Guhl.

247. Endocrinology. 3 semester hours. First semester and summer school.
Prerequisite: Zoöl. 105 and consent of instructor. Herrick.

249. Wild Life Conservation. 3 semester hours. First semester and summer school.
Prerequisite: Zoöl. 105 or equivalent. Methods and techniques in the management and propagation of wild life. Harbaugh.

FOR GRADUATE CREDIT

301. Research in Zoölogy. Credit to be arranged. Each semester and summer school.

Prerequisite: At least two courses in this department. Staff.

Work is offered in:

Bird Study. Goodrich.
Cytology and Embryology. Harman.
Ecology. Harbaugh.
Endrocrinology. Herrick.
Heredity. Nabours.
Histology. Lockhart, Goodrich.
Parasitology. Ackert.
Physiology. Wimmer.
Protozoölogy. Ameel.
Wild Life Conservation. Harbaugh.

The School of Engineering and Architecture

Roy Andrew Seaton, *Dean*

The School of Engineering and Architecture offers curriculums in Agricultural Engineering, Architectural Engineering, Architecture, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Arts, and Mechanical Engineering, each leading to the degree Bachelor of Science in the particular branch of the profession selected.

The curriculums as tabulated give fundamental preparation for entering upon work in the several branches of the professions, with some opportunity for specialization through options and electives. To a limited extent substitutions may be made for certain of the courses listed as required when there appears to be a good reason for them, but each such substitution must have the approval of the head of the department in which the curriculum is administered, the head of the department giving the course which is displaced, and the dean of the school. In no case will the substitution of an additional amount of technical work for any of the cultural work be permitted.

Curriculum in Agricultural Engineering

The field of the agricultural engineer includes research, sales, or advertising in the farm-machinery and farm-motor industry; farm structure design, or promotional work with the building materials industry; soil erosion prevention with the federal and state agencies; rural electric service with electric power companies; management of farms where drainage, irrigation, or power-farming methods are of major importance; and engineering in agricultural development.

The curriculum includes all basic courses which are common to the other engineering curriculums, such as mathematics, physics, and mechanics. Courses in agriculture are also included in order to familiarize the student with the modern methods of agriculture. Training along engineering lines includes farm machinery, farm power, farm structures, highway engineering, drainage, irrigation, soil-erosion control, and modern farm and home equipment.

Curriculum in Architectural Engineering

The Curriculum in Architectural Engineering emphasizes the structural and mechanical phases of architecture. The field of the architectural engineer comprises the superintending of building construction, general contracting, structural design, estimating construction costs, and specification writing.

Students pursuing the Curriculum in Architectural Engineering are urged to devote a fifth year to the work. By so doing they can combine the curriculums in Architecture and Architectural Engineering and receive the Bachelor of Science degree in both. Students intending to receive both degrees should consult with the head of the department at the beginning of the sophomore year.

Students should get practical experience during the summer vacations in the building industry, either on construction projects or in the office of an architect, construction engineer, or contractor.

Curriculum in Architecture

The Curriculum in Architecture, while stressing architectural design, includes also training in building construction, properties and uses of building materials, professional practice, and other phases important to the architectural profession. The aim is to train students for efficient service as draftsmen and designers in an architectural organization and provide them with the necessary foundation for future independent practice.

Students should get practical experience during the summer vacations in the building industry, either on construction projects or in the office of an architect.

Curriculum in Chemical Engineering

The aim of the Curriculum in Chemical Engineering is to prepare the student for work in the design, construction, and operation of chemical plants. The scope of chemical engineering includes the strictly chemical industries, such as those manufacturing acids, alkalis, lacquer solvents, dyes, explosives, metals, and like materials, and also the process industries; for instance, those processing petroleum, rubber, foods, leather, and those manufacturing cement, glass, soap, paints and varnishes, pulp and paper.

Curriculum in Civil Engineering

The first and second years are devoted largely to general cultural studies and the sciences, including mathematics. An introduction to the technical work is given in these years through courses in drawing, surveying, and the elementary phases of engineering.

The last two years are devoted largely to technical work. Provision is made for class and laboratory work in mechanical and electrical engineering. Because of the growing importance of municipal problems, such as paving, sewerage, and water supply, the curriculum includes required courses in these subjects.

Advanced elective courses in railway, highway, and irrigation and drainage engineering are offered in the second semester of the senior year.

Curriculum in Electrical Engineering

The graduate from the Curriculum in Electrical Engineering may enter either the power or the communication field of electrical engineering, and he may engage in such lines as research, design, application, business management, or plant operation.

The student must have a thorough grounding in mathematics and the sciences; practice and theoretical training in drawing, surveying, and shop practice; and a liberal training in the cultural subjects, English, history, and economics. Technical training begins with a course in the first year, followed by one in the second year, and is completed by several courses extending through the junior and senior years. The curriculum provides, in addition, elective work, giving the student opportunity for the selection of extra work along cultural, economic, or technical lines.

Curriculum in Industrial Arts

The Curriculum in Industrial Arts is designed to prepare students for positions as supervisors and directors of training schools in industry, or as teachers in colleges, high schools, and trade schools; also to give some technical training and experience in shop work and drafting, preparatory to entering industrial shops.

By the selection of proper electives, the four-year curriculum in Industrial Arts may lead to the degree of Bachelor of Science in Industrial Arts and also qualify the graduate for the three-year Kansas State Teachers' certificate, valid in any high school or other public school in the state, and renewable for life. The curriculum has the necessary amount of chemistry and physics to meet the same requirements for teaching physical science. Five additional hours of mathematics will qualify for Class A high schools in Kansas.

Curriculum in Mechanical Engineering

The Curriculum in Mechanical Engineering is designed to prepare students for research, design, production, operation, and sales positions in industries that produce or use power and machinery. The field of mechanical engineering is necessarily very broad, including practically every industry. To permit specialization by students in particular phases of mechanical engineering, the curriculum provides optional and elective courses in the junior and senior

years, covering industrial engineering, power production, air conditioning, petroleum production, aeronautical engineering, and machine design.

Students should spend at least two summers in some shop or commercial plant.

Two-Year Curriculum in Industrial Technology

The aim of the two-year Curriculum in Industrial Technology is to provide assistance to those young people, both men and women, who wish to prepare for service in industrial production but who are unable to undertake a four-year curriculum.

All of the courses listed in this curriculum are of college grade, and, therefore, the requirements for entrance are the same as for the four-year curriculums in engineering.

At the completion of the two-year Curriculum in Industrial Technology, the student will be awarded a certificate showing that he has successfully completed the curriculum.

Engineering and Architecture in the Summer School

The school offers summer courses in freehand and mechanical drawing, water-color and oil painting, manual training and shop practice for high-school and grade school teachers, as well as various courses required in the several curriculums. Therefore teachers who wish to take an engineering or architectural curriculum can get a considerable start on the work during their summer vacations, and College students who are irregular may make up courses.

Full information concerning the courses offered is contained in the Summer School number of the Kansas State College *Bulletin,* which may be obtained upon application to the vice-president of the College.

Curriculum in Agricultural Engineering

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	110	Plane Analytic Geom	4
Math.	101	Plane Trigonometry	3	Engl.	112	Written Comm. II	2
Engl.	111	Written Comm. I	3	Mach. Des.	106	Descr Geometry	2
Mach. Des.	101	Engg. Drawing	2	Civ. Engg.	102	Surveying I	2
Shop	102	Shop A	2	Sp.	111	Oral Communications	2
Mil. Sc.	113	Artillery I	1	Shop	166	Welding	1
Gen. Engg.	101	Engg. Lectures	R	Mil. Sc.	114	Artillery II	1
Phys. Ed.	103	Phys. Educ. M	R	Gen. Engg.	101	Engg. Lectures	R
				Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			18

SOPHOMORE

First Semester				Second Semester			
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Agr. Engg.	102	El. of Agr. Engg	3	Mach. Des.	111	Mach. Drawing I	2
Comp.	121	Man and Social World I	4	Shop	165	Metals and Alloys	2
Mil. Sc.	115	Artillery III	1	Comp.	122	Man and Social World II	4
Gen. Engg.	105	Engg. Assembly	R	Mil. Sc.	116	Artillery IV	1
Phys. Ed.	103	Phys. Educ. M	R	Gen. Engg.	105	Engg. Assembly	R
				Phys. Ed.	103	Phys. Educ. M	R
Total			17	Total			18

JUNIOR

First Semester				Second Semester			
Ap. Mech.	202	Applied Mechanics	4	Ap. Mech.	212	Mech. of Matls. I Rec	4
Mech. Engg.	208	Engg. Thermodynamics	4	Ap. Mech.	220	Mech. of Matls. Lab	1
Agr. Engg.	111	Field and Power Mach	4	Ap. Mech.	228	Fluid Mechanics A	4
Agr. Engg.	204	Agricultural Hydrology	3	Agr. Engg.	225	Farm Motors	4
Geol.	103	General Geology	3	Agron.	110	Farm Crops Rec	3
Gen. Engg.	105	Engg. Assembly	R	Agron.	111	Farm Crops Lab	1
				Engl.	215	Technical Reports	1
				Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Agr. Engg.	203	Farm Structures	4	Agr. Engg.	211	Mod. Farm & Home Equip	4
Agron.	130	Soils	4	Agr. Engg.	245	Soil and Water Conserv	4
Bact.	126	Water and Sewage Bact	3	Elec. Engg.	102	Elec. Engg. C Rec	2
Mach. Des.	230	Patents and Inventions	2	Elec. Engg.	106	Elec. Engg. C Lab	1
Comp.	131	Man and Cult. World I	4	Agr. Econ.	106	Farm Organization	3
Agr. Engg.	140	Inspection Trip	R	Comp.	132	Man and Cult. World II	4
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			17	Total			18

Number of hours required for graduation, 142.

*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

Curriculum in Architectural Engineering

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	110	Plane Analytic Geom	4
Math.	101	Plane Trigonometry	3	Engl.	112	Written Comm. II	2
Engl.	111	Written Comm. I	3	Sp.	111	Oral Comm	2
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Civ. Engg.	102	Surveying I	2	Arch.	112	Freehand Drawing I	2
Mil. Sc.	113	Artillery I (Men)	1	Mil. Sc.	114	Artillery II (Men)	1
Gen. Engg.	101	Engg. Lectures	R	Gen. Engg.	101	Engg. Lectures	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			17

SOPHOMORE

First Semester				Second Semester			
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Arch.	116	Pencil Sketching	2	Mech. Engg.	135	Air Cond. A	3
Arch.	101	El. of Arch. I	4	Arch.	102	El. of Arch. II	4
Arch.	154A	Hist. of Arch. I	2	Arch.	157A	Hist. of Arch II	2
Mil. Sc.	115	Artillery III (Men)	1	Mil. Sc.	116	Artillery IV (Men)	1
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			19

JUNIOR

First Semester				Second Semester			
Ap. Mech.	202	Applied Mechanics	4	Ap. Mch.	212	Mech. of Mtls. I Rec	4
Arch.	187A	Bldg. Mtls. and Constr.	3	Arch.	191	Working Drawings	3
Arch.	142	Arch. Design I	3	Arch.	144	Arch. Design II	3
Arch.	158A	Hist. of Arch. III	2	Arch.	160A	Hist. of Arch. IV	2
Elec. Engg.	116	Illumination A	2	Arch.	188	Building Equipment	2
Comp.	111	Man and Biol. World I	4	Comp.	112	Man and Biol. World II	4
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Civ. Engg.	202	Stress Anal. I Rec	4	Civ. Engg.	208	Stress Analysis II	3
Civ. Engg.	205	Stress Anal. I Lab	2	Civ. Engg.	257	Reinf. Con. Des. Rec	2
Civ. Engg.	249	Foundations	2	Civ. Engg.	258	Reinf. Conc. Des. Lab	2
Ap. Mech.	290	Soil Mechanics	2	Civ. Engg.	246	Des. of Framed Struc	3
Ap. Mech.	220	Mech. of Mtls. Lab	1	Comp.	122	Man and Social World II	4
Comp.	121	Man and Social World I	4	Arch.	195	Professional Practice	2
		Elective†	3	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Arch.	199	Inspection Trip	R				
Total			18	Total			16

Number of hours required for graduation, 142

*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Architecture

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Math.	104	College Algebra*	3	Math.	101	Plane Trigonometry	3
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Mach. Des.	101	Engg. Drawing	2	Sp.	111	Oral Comm	2
Arch.	101	El. of Arch. I	4	Mach. Des.	106	Descr. Geometry	2
Arch.	154A	Hist. of Arch. I	2	Arch.	102	El. of Arch. II	4
Arch.	112	Freehand Drawing I	2	Arch.	157A	Hist. of Arch. II	2
Mil. Sc.	113	Artillery I (Men)	1	Arch.	113	Freehand Drawing II	2
Gen. Engg.	101	Engg. Lectures	R	Mil. Sc.	114	Artillery II (Men)	1
Phys. Ed.	103	Phys. Educ. M	R	Gen. Engg.	101	Engg. Lectures	R
				Phys. Ed.	103	Phys. Educ. M	R
Totals			17	Totals			18

SOPHOMORE

First Semester				Second Semester			
Phys.	102	General Physic	4	Phys.	103	General Physics	4
Arch.	142	Arch. Design I	3	Arch.	144	Arch. Design II	3
Arch.	187A	Bldg. Mtls. and Constr.	3	Arch.	191	Working Drawings	3
Arch.	158A	Hist. of Arch. III	2	Arch.	160A	Hist. of Arch. IV	2
Arch.	116	Pencil Sketching	2	Arch.	121	Life Drawing I	2
Arch.	118	Water Color I	2	Ap. Mech.	102	Applied Mech. A	3
Mil. Sc.	115	Artillery III (Men)	1	Mil. Sc.	116	Artillery IV (Men)	1
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			17	Total			18

JUNIOR

First Semester				Second Semester			
Ap. Mech.	116	Str. of Mtls. A Rec	3	Arch.	192	Theory of Structures I	4
Ap. Mech.	121	Str. of Mtls. A Lab	1	Arch.	147	Arch. Design IV	5
Arch.	145	Arch. Design III	5	Arch.	188	Building Equipment	2
Arch.	179	Hist. of Paint. and Sculp.	3	Comp.	112	Man and Biol. World II	4
Comp.	111	Man and Biol. World I	4	Mech. Engg.	135	Air Cond. A	3
Elec. Engg.	116	Illumination A	2	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Arch.	254	Arch. Design V	7	Arch.	257	Arch. Design VI	7
Arch.	194A	Theory of Structures II	5	Arch.	196	Theory of Structures III	4
Arch.	123	Life Drawing II	2	Arch.	195	Professional Practice	2
Comp.	121	Man and Social World I	4	Comp.	122	Man and Social World II,	4
Gen. Engg.	105	Engg. Assembly	R			Elective†	1
Arch.	199	Inspection Trip	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

Number of hours required for graduation, 142.

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*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Chemical Engineering

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	101	Chemistry I	5	Chem.	103	Chemistry II Rec	3
Math.	104	College Algebra*	3	Chem.	104	Chemistry II Lab	2
Math.	101	Plane Trigonometry	3	Math.	110	Plane Analytic Geom	4
Engl.	111	Written Comm. I	3	Mach. Des.	106	Descr. Geometry	2
Mach. Des.	101	Engg. Drawing	2	Engl.	112	Written Comm. II	2
Mil. Sc.	113	Artillery I	1	Sp.	111	Oral Comm	2
Gen. Engg	101	Engg. Lectures	R	Chem. Engg.	201	Chem. Engg. Materials	2
Phys. Ed.	103	Phys. Educ. M	R	Mil. Sc.	114	Artillery II	1
				Gen. Engg.	101	Engg. Lectures	R
				Phys. Ed.	103	Phys. Educ. M	R
Total			17	Total			18

SOPHOMORE

First Semester				Second Semester			
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Chem.	215	Quan. Analysis	3	Chem. Engg.	205	Ind. Stoichiometry	2
		Social Sc. Elective†	4			Social Sc. Elective†	4
Mil. Sc.	115	Artillery III	1	Mach. Des.	111	Mach. Drawing I	2
Phys. Ed.	103	Phys. Educ. M	R	Mil. Sc.	116	Artillery IV	1
Gen. Engg.	105	Engg. Assembly	R	Phys. Ed.	103	Phys. Educ. M	R
				Gen. Engg.	105	Engg. Assembly	R
Total			17	Total			18

JUNIOR

First Semester				Second Semester			
Chem.	260	Phys. Chemistry I	5	Chem.	261	Phys. Chem. II Rec	3
Chem.	223	Org. Chemistry I	5	Chem.	262	Phys. Chem. II Lab	2
Chem. Engg.	221	Unit Operations I Rec	3	Chem.	224	Org. Chemistry II	5
		Humanities Elective†	4	Chem. Engg.	226	Unit Operations II Rec	3
Gen. Engg.	105	Engg. Assembly	R	Chem. Engg.	224	Unit Operations I Lab	2
						Humanities Elective†	4
				Gen. Engg.	105	Engg. Assembly	R
Total			17	Total			19

SENIOR

First Semester				Second Semester			
Chem. Engg.	234	Unit Operations II Lab	2	Chem. Engg.	245	Chem. Engg. Plt. Design,	4
Chem. Engg.	240	Unit-Process Lab	2	Mech. Engg.	204	Heat Power Engg. A	3
Chem. Engg.	236	Chem. Technology	4	Mech. Engg	206	Heat Power Lab	1
Chem. Engg.	229	Chem. Engg. Thermodyns,	4	Elec. Engg.	102	Elec. Engg. C Rec	2
Ap. Mech.	202	Applied Mechanics	4	Elec. Engg.	106	Elec. Engg. C Lab	1
		Elective†	2	Ap. Mech.	212	Mech. of Mtls. I Rec	4
Chem. Engg.	150	Inspection Trip	R			Elective†	3
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

Number of hours required for graduation, 142.

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*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Civil Engineering

FRESHMAN

First Semester				Second Semester			
Course			*Sem. Hrs.*	*Course*			*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Math.	104	College Algebra*	3	Sp.	111	Oral Communications	2
Math.	101	Plane Trigonometry	3	Math.	110	Plane Analytic Geom	4
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Mil. Sc.	113	Artillery I	1	Civ. Engg.	102	Surveying I	2
Phys. Ed.	103	Phys. Ed. M	R	Mil Sc.	114	Artillery II	1
Gen. Engg.	101	Engg. Lectures	R	Phys. Ed.	103	Phys. Ed. M	R
				Gen. Engg.	101	Engg. Lectures	R
Total			16	Total			17

SOPHOMORE

First Semester				Second Semester			
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Ent.	101	General Entomology	3	Shop	165	Metals and Alloys	2
Mach. Des.	111	Machine Drawing I	2	Civ. Engg.	125	C. E. Drawing	2
Mil. Sc.	115	Artillery III	1	Mil. Sc.	116	Artillery IV	1
Phys. Ed.	103	Phys. Ed. M	R	Phys. Ed.	103	Phys. Ed. M	R
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			19	Total			18

JUNIOR

First Semester				Second Semester			
Ap. Mech.	202	Applied Mechanics	4	Ap. Mech.	212	Mech. of Matls. I Rec	4
Ap. Mech.	250	Hwy. & Airpt. Mtls. Lab.	1	Ap. Mech.	220	Mech. of Matls. Lab	1
Mech. Engg.	120	Steam and Gas Engg. C	2	Ap. Mech.	290	Soil Mechanics	2
Mech. Engg.	206	Heat Power Lab	1	Ap. Mech.	228	Fluid Mechanics A	4
Civ. Engg.	112	Surveying II	4	Ap. Mech.	235	Hydraulics Lab	1
Bact.	126	Water and Sewage Bact.	3	Civ. Engg.	219	Photogrammetry	4
Geol.	103	General Geology	3	St. Health	101	Prev. Med. & Pub. Health	2
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Civ. Engg.	202	Stress Analysis I Rec	4	Civ. Engg.	208	Stress Analysis II	3
Civ. Engg.	205	Stress Analysis I Lab	2	Civ. Engg.	257	Reinf. Conc. Des. Rec	2
Civ. Engg.	222	Sanitary Engg	4	Civ. Engg.	258	Reinf. Conc. Des. Lab	2
Civ. Engg.	233	Transportation Engg	5	Civ. Engg.	246	Des. of Framed Struct	3
Elec. Engg.	102	Elec. Engg. C Rec	2	Civ. Engg.	217	Astronomy and Geodesy	3
Elec. Engg.	106	Elec. Engg. C Lab	1	Civ. Engg.	235	Applied Hydrology	2
Civ. Engg.	180	Inspection Trip	R	Civ. Engg.	249	Foundations	2
Gen. Engg.	105	Engg. Assembly	R	Engl.	215	Tech. Reports	1
				Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

Number of hours required for graduation, 142.

*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

Curriculum in Electrical Engineering

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	110	Plane Analytic Geom	4
Math.	101	Plane Trigonometry	3	Mach. Des.	106	Descriptive Geometry	2
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Mach. Des.	101	Engg. Drawing	2	Shop	102	Shop A	2
Shop	166	Welding	1	Sp.	111	Oral Communications	2
Mil. Sc.	113	Artillery I	1	Mil. Sc.	114	Artillery II	1
Gen. Engg.	101	Engg. Lectures	R	Gen. Engg.	101	Engg. Lectures	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			17	Total			17

SOPHOMORE

First Semester				Second Semester			
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Civ. Engg.	102	Surveying I	2	Elec. Engg	201	Prin. of Elec. Engg	2
Shop	165	Metals and Alloys	2	Mach. Des.	111	Mach. Drawing I	2
Mil. Sc.	115	Artillery III	1	Mil. Sc	116	Artillery IV	1
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			18

JUNIOR

First Semester				Second Semester			
Elec. Engg.	209	A. C. Circuits	4	Ap. Mech.	202	Applied Mechanics	4
Elec. Engg.	203	D. C. Machinery Rec	4	Elec. Engg.	227	Elec. Meas. Rec	2
Elec. Engg.	204	D. C. Machinery Lab	1	Elec. Engg.	228	Elec. Meas. Lab	2
Elec. Engg.	220	Electronics I	2	Elec. Engg.	222	Electronics II Rec	4
Comp.	131	Man and Cult. World I	4	Elec. Engg.	223	Electronics II Lab	2
Math.	121	Diff. Equa. for Engrs	2	Comp.	132	Man and Cult. World II	4
Engl.	215	Technical Reports	1	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Elec. Engg.	210	A. C. Mach. I. Rec	3	Elec. Engg.	212	A. C. Mach. II Rec	3
Elec. Engg.	211	A. C. Mach. I Lab	2	Elec. Engg.	213	A. C. Mach. II Lab	2
Elec. Engg.	244	Wire Commun. I Rec	3 *or*	Mech. Engg.	204	Heat Power Engg. A	3
Elec. Engg.	290	Econ. of El. Engg	3	Mech. Engg.	206	Heat Power Lab	1
Ap. Mech.	212	Mech. of Matls. I Rec	4			Biological Sc. Elective†	3
Mech. Engg.	208	Engg. Thermodynamics	4			Technical Elective‡†	6
		Electives‡†	2	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18	Total			18

Number of hours required for graduation, 142.

Communication or Electronics Option

‡ In the Communication or Electronics Option, these electives may be selected from the following:

Elec. Engg.	245	Wire Commun. I Lab	1	Elec. Engg.	257	Ultra-High Freq. Tech. Rec.	3
Elec. Engg.	252	Radio Commun. I Rec	3	Elec. Engg.	258	Ultra-High Freq. Tech. Lab.	1
Elec. Engg.	253	Radio Commun. I Lab	1	Elec. Engg.	224	Ind. Electronics Rec	3
Elec. Engg.	255	Radio Commun. II Rec	3	Elec. Engg.	225	Ind. Electronics Lab	1
Elec. Engg.	259	Radio Commun. II Lab	1				

*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Curriculum in Industrial Arts

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	101	Plane Trig	3
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Shop	173	Sheet Metal A	2	Shop	121	Woodwork I	2
Shop	102	Shop A	2	Shop	135	Wood Turning	2
Mil. Sc.	113	Artillery I (Men)	1	Shop	166	Welding	1
Phys. Ed.	103	Phys. Ed. M	R	Mil. Sc.	114	Artillery II (Men)	1
Gen. Engg.	101	Engg. Lectures	R	Phys. Ed.	103	Phys. Ed. M	R
				Gen. Engg.	101	Engg. Lectures	R
Total			17	Total			17

SOPHOMORE

First Semester				Second Semester			
Phys.	102	General Physics I	4	Phys.	103	General Physics II	4
Educ.	184	General Psychology	3	Mach. Des.	118	Machine Drawing II	2
Mach. Des.	111	Machine Drawing I	2	Engl.	125	Bus. Engl. and Sales	3
Sp.	111	Oral Communications	2	Shop	147	Carpentry	3
Civ. Engg.	102	Surveying I	2	Shop	157	Blacksmithing	1
Comp.	111	Man and Biol. World I	4 *or*	Comp.	112	Man and Biol. World II	4 *or*
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
Mil. Sc.	115	Artillery III (Men)	1	Mil. Sc.	116	Artillery IV (Men)	1
Phys. Ed.	103	Phys. Ed. M	R	Phys. Ed.	103	Phys. Ed. M	R
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

JUNIOR

First Semester				Second Semester			
Econ.	136	Prin. of Account	3	Econ.	101	Economics I	3
Mach. Des.	121	Mechanism	3	Ap. Mech.	102	Applied Mech. A	3
Shop	167	Elec. Welding	1	Hist.	163	Business Law I	3 *or*
Shop	168	Gas Welding	1	Educ.	109	Educ. Psychology	3
Shop	122	Finishing I	2	Agr. Engg.	130	Gas Eng. and Tractors	3
Shop	170	Machine Tool I	2	Elec. Engg.	113	Electric Wiring	1
Shop	250	Time and Motion	2	Sp.	107	Public Speaking	2
Shop	165	Metals and Alloys	2	Shop	126	Woodwork II	2
Shop	180	Gaging	1	Shop	161	Foundry I	1
Engl.	215	Technical Reports	1	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Ap. Mech.	116	Str. of Mtls. A Rec	3	Elec. Engg.	102	Elec. Engg. C Rec	2
Ap. Mech.	121	Str. of Mtls. A Lab	1	Elec. Engg.	106	Elec. Engg. C Lab	1
Mech. Engg.	120	Steam and Gas Engg. C	2	Shop	110	Aero Mechanics I	4
Shop	192	Machine Tool II	2	Shop	174	Safety	2
Shop	104	Auto Mechanics I	4	Gen. Engg.	105	Engg. Assembly	R
Shop	194	Inspection Trip	R				
Gen. Engg.	105	Engg. Assembly	R				
	Factory Option				*Factory Option*		
Shop	246	Indus. Management	3	Shop	262	Metallography I	1
		Elective†	3	Hist.	105	Am. Ind. History	3
				Shop	255	Factory Design	2
						Elective†	3
	Teaching Option‡				*Teaching Option‡*		
Educ.	236	Prin. of Secondary Educ	3	Educ.	163	Teach. Part. in H. S.	3
Educ.	134	Meth. of Teach'g Ind. Arts,	3	Educ.	239	Educ. Sociology	3
						Elective†	3
Total			18	Total			18

Number of hours required for graduation, 142.

*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department of shop practice and the dean.

‡ The teaching option in Industrial Arts meets the Kansas requirements for teaching science, woodwork, machine shop, metal shop, auto mechanics, aero mechanics and mechanical drawing. Those desiring to teach mathematics may elect 3 hours in this field.

Curriculum in Mechanical Engineering

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	104	College Algebra*	3	Math.	110	Plane Analytic Geom	4
Math.	101	Plane Trigonometry	3	Engl.	112	Written Comm. II	2
Engl.	111	Written Comm. I	3	Sp.	111	Oral Communications	2
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Shop	166	Welding	1	Shop	102	Shop A	2
Mil. Sc.	113	Artillery I	1	Mil. Sc.	114	Artillery II	1
Gen. Engg.	101	Engg. Lectures	R	Gen. Engg.	101	Engg. Lectures	R
Phys. Ed.	103	Phys. Educ. M	R	Phys. Ed.	103	Phys. Educ. M	R
Total			17	Total			17

SOPHOMORE

First Semester				Second Semester			
Phys.	105	Engg. Physics I	5	Phys.	106	Engg. Physics II	5
Math.	114	Calculus I	4	Math.	115	Calculus II	4
Mach. Des.	121	Mechanism	3	Shop	165	Metals and Alloys	2
Mach. Des.	111	Mach. Drawing I	2	Shop	262	Metallography I	1
		Humanities Elective†	3	Mach. Des.	118	Mach. Drawing II	2
Mil. Sc.	115	Artillery III	1			Humanities Elective†	3
Gen. Engg.	105	Engg. Assembly	R	Mil. Sc.	116	Artillery IV	1
Phys. Ed.	103	Phys Educ. M	R	Gen. Engg.	105	Engg. Assembly	R
				Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			18

JUNIOR

First Semester				Second Semester			
Ap. Mech.	202	Applied Mechanics	4	Ap. Mech.	212	Mech. of Mtls. I Rec	4
Mech. Engg.	208	Engg. Thermodynamics	4	Elec. Engg.	242	Elec. Engg. M-II Rec	3
Elec. Engg.	237	Elec. Engg. M-I Rec	4	Elec. Engg.	243	Elec. Engg. M-II Lab	1
Elec. Engg.	238	Elec. Engg. M-I Lab	1			Soc. Science Elective†	2
Econ.	101	Economics I	3			Option	7 or 8
		Option	2 or 3	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18 or 19	Total			17 or 18

SENIOR

First Semester				Second Semester			
Ap. Mech.	220	Mech. of Mtls. Lab	1	Mach. Des.	204	Mach. Des. I Rec	3
Shop	246	Industrial Management	3			Restricted Elective‡	3
Mech. Engg.	242	Mech. Engg. Lab. I	2			Option	11 or 12
Mech. Engg.	204	Heat Power Engg. A	3	Gen. Engg.	105	Engg. Assembly	R
Mech. Engg.	196	Prof. Development	1				
		Restricted Elective‡	3				
		Option	5 or 6				
Gen. Engg.	105	Engg. Assembly	R				
Total			18 or 19	Total			17 or 18

Number of hours required for graduation, 142.

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*Students who offer but one unit of algebra for admission take a five-hour course in college algebra, Math. 107, the first semester, postponing two hours of other work.

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

‡ To be chosen from the fields of Social Science, Humanities, or Biology with the approval of the head of department and the dean.

Options: Curriculum in Mechanical Engineering

Aeronautical Option—A

JUNIOR

First Semester				Second Semester			
Math.	121	Diff. Eq. for Engrs	2	Ap. Mech.	231	Fluid Mechanics B	3
				Mech. Engg.	251	Heat Transf. & Fl. Flow	4
Total			2	Total			7

SENIOR

First Semester				Second Semester			
Mach. Des.	206	Aerodynamics I Rec	3	Mech. Engg.	246	Aero. Engg. Lab	2
Mach. Des.	207	Aerodynamics I Lab	1	Mech. Engg.	231	Int. Comb. Engines	3
		Tech. Elective†	2	Mach. Des.	260	Airpl. Des. and Const	3
				Ap. Mech.	286	Airpl. Stress Anal. I	4
Total			6	Total			12

Students majoring in Mechanical Engineering who desire more specialized training in aeronautical engineering may pursue the following adaptation of the Curriculum in Mechanical Engineering.

Aeronautical Option—B

(Freshman and Sophomore years same as for regular Mechanical Engineering Curriculum.)

JUNIOR

First Semester				Second Semester			
Ap. Mech.	202	Applied Mechanics	4	Ap. Mech.	212	Mech. of Mtls. I Rec	4
Mech. Engg.	208	Engg. Thermodynamics	4	Ap. Mech.	220	Mech. of Mtls. I Lab	1
Elec. Engg.	102	Elec. Engg. C Rec	2	Ap. Mech.	231	Fluid Mechanics B	3
Elec. Engg.	106	Elec. Engg. C Lab	1	Mech. Engg.	231	Int. Comb. Engines	3
Elec. Engg.	220	Electronics I	2	Shop	246	Industrial Mgt	3
Math.	121	Diff. Eq. for Engrs	2	Mach. Des.	206	Aerodynamics I Rec	3
Shop	264	Aircr. Mtls. and Fabric	3	Mach. Des.	207	Aerodynamics I Lab	1
Gen. Engg.	105	Engg. Assembly	R	Gen. Engg.	105	Engg. Assembly	R
Total			18	Total			18

SENIOR

First Semester				Second Semester			
Mach. Des.	218	Prop. Theory and Des	2	Elec. Engg.	268	Airpl. Elec. Equip. Rec	3
Mach. Des.	216	Aerodynamics II Rec	3	Elec. Engg.	269	Airpl. Elec. Equip. Lab	1
Mach. Des.	217	Aerodynamics II Lab	1	Mech. Engg.	247	Aircraft Power Plants	3
Mach. Des.	221	Airplane Design I	3	Mech. Engg.	246	Aeronautical Engg. Lab	2
Ap. Mech.	286	Airpl. Stress Anal. I	4	Mach. Des.	222	Airplane Design II	3
Comp.	121	Man and Soc. World I	4	Ap. Mech.	287	Airpl. Stress Anal. II	2
Mech. Engg.	196	Prof. Development	1	Comp.	122	Man and Soc. World II	4
Mech. Engg.	180	Inspection Trip	R	Gen. Engg.	105	Engg. Assembly	R
Gen. Engg.	105	Engg. Assembly	R				
Total			18	Total			18

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Industrial Option

JUNIOR

First Semester			Second Semester		
Shop	170 Machine Tool I	2	Ap. Mech.	228 Fluid Mechanics A	4
			Shop	250 Time and Motion	2
			Shop	192 Machine Tool II	2
Total		2	Total		8

SENIOR

First Semester			Second Semester		
Mech. Engg.	228 Air Conditioning	3	Mech. Engg.	243 Mech. Engg. Lab. II	2
	Tech. Elective†	3	Mach. Des.	205 Machine Design I Lab	2
			Shop	174 Safety	2
			Shop	255 Factory Design	2
				Tech. Elective†	3
Total		6	Total		11

Petroleum Production Option

JUNIOR

First Semester			Second Semester		
Geol.	103 General Geology	3	Ap. Mech.	228 Fluid Mechanics A	4
			Geol.	203 Historical Geology	4
Total		3	Total		8

SENIOR

First Semester			Second Semester		
Mech. Engg.	270 Petroleum Prod. I	3	Mech. Engg.	271 Petroleum Prod. II	3
Civ. Engg.	102 Surveying I	2	Mech. Engg.	243 Mech. Engg. Lab. II	2
			Mach. Des.	205 Machine Design I Lab	2
			Geol.	223 Petroleum Geology	4
Total		5	Total		11

Technical Option

JUNIOR

First Semester			Second Semester		
Math.	121 Diff. Eq. for Engrs	2	Ap. Mech.	231 Fluid Mechanics B	3
			Mech. Engg.	251 Heat Transf. and Fl. Flow,	4
Total		2	Total		7

SENIOR

First Semester			Second Semester		
Mech. Engg.	228 Air Conditioning	3	Ap. Mech.	213 Mech. of Materials II	2
	Tech. Elective†	3	Mech. Engg.	243 Mech. Engg. Lab. II	2
			Mech. Engg.	220 Power Plant Design	3
			Mach. Des.	205 Machine Design I Lab	2
				Tech. Elective†	3
Total		6	Total		12

† Electives are to be chosen with the advice and approval of the head of the department and the dean.

Two-Year Curriculum in Industrial Technology

FIRST YEAR

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Chem.	107	Chemistry E-I	4	Chem.	108	Chemistry E-II	4
Math.	107	College Algebra A	5	Math.	101	Plane Trigonometry	3
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Mach. Des.	101	Engg. Drawing	2	Mach. Des.	106	Descr. Geometry	2
Shop	102	Shop A	2	Mach. Des.	111	Mach. Drawing I	2
Shop	166	Welding	1	Shop	167	Electric Welding	1
Mil. Sc.	113	Artillery I (Men)	1	Shop	168	Gas Welding	1
Gen. Engg.	101	Engg. Lecture	R	Shop	161	Foundry I	1
Phys. Ed.	103	Phys. Educ. M	R	Mil. Sc.	114	Artillery II (Men)	1
				Gen. Engg.	101	Engg. Lecture	R
				Phys. Ed.	103	Phys. Ed. M	R
Total			18	Total			17

SECOND YEAR

First Semester				Second Semester			
Phys.	102	General Physics I	4	Phys.	103	General Physics II	4
Ap. Mech.	102	Applied Mech. A	3	Ap. Mech.	116	Str. of Mtls. A Rec	3
Mach. Des.	121	Mechanism	3	Ap. Mech.	121	Str. of Mtls. A Lab	1
Mach. Des.	118	Machine Drawing II	2	Elec. Engg.	113	Electric Wiring	1
Shop	165	Metals and Alloys	2	Mech. Engg.	120	Steam and Gas Engg. C	2
Shop	170	Machine Tool I	2	Shop	182	Industrial Control	2
Shop	180	Gaging	1	Shop	192	Machine Tool II	2
Mil. Sc.	115	Artillery III (Men)	1	Shop	262	Metallography I	1
Phys. Ed.	103	Phys. Educ. M	R	Shop	150	Forgg. and Heat Treatg	1
				Mil. Sc.	116	Artillery IV (Men)	1
				Phys. Ed.	103	Phys. Educ. M	R
Total			18	Total			18

Agricultural Engineering

Professor Fenton
Assistant Professor Martin
Instructor Carleton

FOR UNDERGRADUATE CREDIT

101. Farm Buildings. 3 semester hours. Second semester and summer on alternate years.

Requirements, details of arrangements, and materials of construction for farm buildings; preparation of plans, bills of material, and estimates of costs; water supply, sewage disposal, lighting, and other modern equipment for the farmstead. Two hours of recitation and three of laboratory a week. Fenton.

102. Elements of Agricultural Engineering. 3 semester hours. First semester.

Survey of the field of agricultural engineering, power in agriculture, power transmission, belts, gears, mechanisms, bearings, gages and measurements, shop skills. One hour of recitation and six of laboratory a week. Charge, $2.

103. Farm Mechanics. 2 semester hours. First semester.

Shop skills for teachers of vocational agriculture including pipe fitting, plumbing repairs, taps and dies, drilling, soldering, babbitting, use of hand tools and sharpening. Special lathe work and welding with direct application to the repair of farm machinery. Six hours of laboratory a week. Prerequisite: Shop 157 and 167. Charge, $2. For students in the Curriculum in Agricultural Education.

104. Farm Machinery Repair. 2 semester hours. Second semester.

Construction, repair, operation, adjustment, calibration, and maintenance of farm machinery and equipment. Six hours of laboratory a week. Prerequisite: Agr. Engg. 103. Charge, $2. For students in the Curriculum in Agricultural Education.

106. Farm Power. 3 semester hours. Second semester.

Selection, operation and maintenance of engines, tractors and electric motors; principles of valve timing, ignition, carburetion, cooling, lubrication, and fuels; with special emphasis on repair and reconditioning. One hour of recitation and six hours of laboratory a week. Charge, $2. For students in the Curriculum in Agricultural Education.

108. Farm Machinery. 3 semester hours. Each semester and summer.

Construction, operation, adjustment, power requirements, use, service, and repair of farm machinery. Two hours of recitation and three hours of laboratory a week. Charge, $2. For agricultural students.

111. Field and Power Machinery. 4 semester hours. First semester.

A comprehensive study of the development, design, construction, economics, power requirements, use and servicing of farm machinery. Two hours of recitation and six hours of laboratory a week. Prerequisite: Mach. Des. 121 and Phys. 106. Charge, $2.

130. Gas Engines and Tractors. 3 semester hours. Each semester and summer.

Principles of the internal combustion engine; carburetion, valve timing, ignition, cooling, lubrication, and fuels; the servicing and repair of farm engines and the selection of power for agriculture. Two hours of recitation and three hours of laboratory a week. Charge, $2. For agricultural students.

140. Inspection Trip. Required; no credit. First semester.

A trip of three to five days for the purpose of studying farm machinery production and other projects of special interest to agricultural engineers.

Cost of trip, $25 to $50. Prerequisite: Senior classification. Fenton, and assistants.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Power and Machinery in Agriculture. 2 semester hours. First semester.
History and development of machinery in agriculture; the application, selection, management, and cost of machines; future development; a survey course dealing with the mechanization of agriculture. Two hours of recitation a week. Prerequisites: Junior or senior classification. Fenton. Open to all students who have not taken Agr. Engg. 108 or 130.

202. Dairy Mechanics. 3 semester hours. Second semester.
Installation, adjustment and operation of dairy plant equipment; boilers, engines, motors, pumps, refrigeration machinery; water supply, waste disposal. Two hours of recitation and three hours of laboratory a week. Charge, $2. Staff.

203. Farm Structures. 4 semester hours. First semester.
Design of farm structures; details and materials of construction; specifications and estimates. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 212. Fenton.

204. Agricultural Hydrology. 3 semester hours. First semester.
The hydraulic cycle, rainfall, runoff, soil and water relationships affecting crop production, drainage, irrigation and erosion. Watershed surveys. Two hours of recitation and three hours of laboratory a week. Charge, $2.

205. Agricultural Engineering Problems. Credit to be arranged. Each semester and summer.
Problems in the design, construction, or application of machinery or power in agriculture, structures, modern conveniences, rural electrification. Prerequisite: Permission of instructors. Fenton.

206. Farm Mechanics Methods. 3 semester hours. Second semester.
Methods of teaching farm mechanics in vocational agriculture, including the organization and equipment of the farm shop; preparation and use of job sheets and instruction sheets; practice in the demonstration of shop skills and in the construction of farm mechanics projects. One hour of recitation and six hours of laboratory a week. Prerequisite: Ag. Engg. 103 and 106. Charge, $2. For students of the Curriculum in Agricultural Education.

207. Farm Building Construction. 3 semester hours. First semester.
Planning and construction of buildings and equipment for the farm; concrete and masonry, farm carpentry, painting, new building materials; blueprint reading, bills of materials, and cost estimates. One hour of recitation and six hours of laboratoy a week. Prerequisite: Agr. Engg. 103. Charge, $2. For students of the Curriculum in Agricultural Education.

208. Agricultural Engineering Applications. 2 semester hours. First semester.
Practical laboratory exercises, surveying, terracing, contouring, drainage, irrigation, fencing, electric wiring, farm water supply, sewage disposal, heating, lighting, refrigeration, etc. Six hours of laboratory a week. Prerequisite: Junior standing. Charge, $2. For students of the Curriculum in Agricultural Education.

211. Modern Farm and Home Equipment. 4 semester hours. Second semester.
Water supply, sewage disposal, lighting, heating, and ventilation of farm buildings; refrigeration; rural electrification. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 228 and 235. Charge, $2. Fenton.

215. Tractor Research. Credit to be arranged. First semester.
Research studies relating to tractor construction and operation. Prerequisite: Agri. Engg. 225 or equivalent.

225. Farm Motors. 4 semester hours. Second semester.
Theory, design, operation, and adjustment of the internal combustion engine and a comprehensive study of power and its application to agriculture. Two hours of recitation and six hours of laboratory a week. Prerequisite: Phys. 106, Math. 114, and Mech. Engg. 208. Charge, $3.

240. Drainage, Erosion Control, and Irrigation. 3 semester hours. Second semester.
Principles and practices of land improvement by terracing and other methods of erosion control; drainage, irrigation, and land clearing. Two hours of recitation and three hours of laboratory a week. Prerequisite: Agron. 130. Charge, $1. Fenton. For agricultural students.

245. Soil and Water Conservation. 4 semester hours. Second semester.
Principles and methods of land drainage, soil and water conservation, and irrigation. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 228, Agr. Engg. 204, and Agron. 130. Charge, $2. Fenton.

FOR GRADUATE CREDIT

301. Research in Agricultural Engineering. Credit to be arranged. Each semester and summer.
The laboratories of the College are available for research in the design, use, and application of machinery and equipment in the development of agriculture. The results of such investigation, if suitable, may be incorporated in bulletins of the Engineering Experiment Station, or furnish material for the master's thesis. Prerequisite: Agron. 130 and Phys. 106 or equivalent. Fenton.

Applied Mechanics

Professor Scholer
Professor Robert
Associate Professor Koenitzer
Associate Professor McCormick
Associate Professor Taylor
Assistant Professor Jones
Instructor Eppler
Instructor Kirmser
Instructor Munger

FOR UNDERGRADUATE CREDIT

102. Applied Mechanics A. 3 semester hours. Second semester.
A study of statics, with applications to stress in structures; center of gravity; moment of inertia. Three hours of recitation a week. Prerequisite: Math. 101 and Phys. 102. Robert.

116. Strength of Materials A Recitation. 3 semester hours. First semester.
Behavior of materials subjected to tension, compression, shear, and bending; designs of beams of wood, steel, and reinforced concrete; design and investigation of columns; practice in the use of a handbook. Three hours of recitation a week. Prerequisite: Ap. Mech. 102. Robert.

121. Strength of Materials A Laboratory. 1 semester hour. First semester.
A study of various testing machines; tension, compression, shear, and bending tests on iron, steel, wood, and concrete; tests on cement and on the fine and coarse aggregates for concrete. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 116. Charge, $2. Staff.

150. Thesis. Credit to be arranged. Each semester and summer.
Subject of investigation to be selected in consultation with the head of the department at the beginning of the senior year. Scholer, Robert.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Applied Mechanics. 4 semester hours. Each semester and summer.
Composition, resolution, and conditions of equilibrium of concurrent and noncurrent forces; center of gravity; friction; laws of rectilinear and curvi-

linear motion of material points; moment of inertia; relations between forces acting on rigid bodies and the resulting motions; work, energy, and power. Four hours of recitation a week. Prerequisite: Math. 115 and Phys. 105. Staff.

212. Mechanics of Materials I Recitation. 4 semester hours. Each semester and summer.

Behavior of materials subject to tension, compression, and shear; riveted joints; torsion; shafts and the transmission of power; strength and stiffness of simple and continuous beams; bending and shear in beams; design of beams; stresses in columns and hooks. Four hours of recitation a week. Prerequisite: Ap. Mech. 202. Staff.

213. Mechanics of Materials II Recitation. 2 semester hours. Second semester.

An extension of Ap. Mech. 212 with special reference to the needs of students in Mechanical Engineering. Two hours of recitation a week. Prerequisite: Ap. Mech. 212 Staff.

220. Mechanics of Materials Laboratory. 1 semester hour. Each semester and summer.

Tension, compression, shear, and bending tests on specimens of iron, steel, wood, and concrete; torsion tests on steel shafting; standard tests on fine and coarse aggregates for concrete. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech 212. Charge, $2. Staff.

228. Fluid Mechanics A. 4 semester hours. Each semester and summer.

Fluid pressures, center of pressure, immersion and flotation; Bernouilli's Theorem for compressible and incompressible fluids; the principle of similarity, the Reynold's and Froude numbers; flow of fluids through orifices, nozzles, pipes; flow of water over weirs and in open channels; elements of water power, impulse wheels, reaction turbines, and centrifugal pumps. Four hours of recitation a week. Prerequisite: Ap. Mech. 202. Staff.

231. Fluid Mechanics B. 3 semester hours. Second semester.

An optional course to hydraulics, for mechanical engineering students, in which both gaseous and liquid fluids are treated. Three hours of recitation a week. Prerequisite: Ap. Mech. 202 and Mech. Engg. 208. Robert. Not open to students with credit in Ap. Mech. 228.

235. Hydraulics Laboratory. 1 semester hour. Each semester and summer.

Tests to determine the coefficients of weirs and orifices, loss of head in pipes, water wheels, water turbines, rams and pumps. Three hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 228 or 231. Charge, $1. Staff.

250. Highway and Airport Materials Laboratory. 1 semester hour. Each semester.

A comprehensive course in the examination and testing of materials used in the construction of highways and airports. Three hours of laboratory a week. Prerequisite: Ap. Mech. 220. Charge, $1.50. Koenitzer.

265. Advanced Mechanics of Materials. 2 semester hours. First semester.

A more comprehensive presentation of the methods of analysis of stresses in the members of machines and structures. Two hours of recitation a week. Prerequisite: Ap. Mech 212. Scholer, Robert.

268. Elastic Energy Theory. 3 semester hours. First semester.

The elastic energy theory applied to trusses, frames, beams, and curved beams. Three hours of recitation a week. Prerequisite: Ap. Mech. 212. Scholer.

269. Applied Elasticity. 3 semester hours. Second semester.

Theory of elasticity with its application to stress analysis. Three hours of recitation a week. Prerequisite: Ap. Mech. 212 and Math. 121. Scholer.

270. Hydraulic Machinery. 2 semester hours. First semester.
Characteristics and applications of water wheels, turbines, pumps, and other hydraulic machinery. Two hours of recitation a week. Prerequisite: Ap. Mech. 228. Robert.

275. Advanced Highway and Airport Materials. 2 semester hours. Second semester.
An advanced course in the properties and testing of the various materials used in the construction of highways and airports. One hour of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 250. Scholer.

276. Design of Concrete Mixtures. 3 semester hours. First semester.
Practical applications of the fundamental principles of concrete making, using various kinds of cement and placing special emphasis on the proper designing, mixing, and placing of concrete mixtures to meet certain strength and durability requirements. One hour of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 220. Charge, $2.50. Munger.

286. Airplane Stress Analysis I. 4 semester hours. First semester.
Analysis of stress and stability problems in the structural elements of airplanes. Three hours of recitation and three hours of laboratory a week. Prerequisite: Math. 121 and Ap. Mech. 212. Robert.

287. Airplane Stress Analysis II. 2 semester hours. Second semester.
A continuation of Airplane Stress Analysis I. Two hours of recitation a week. Prerequisite: Ap. Mech. 286. Robert.

290. Soil Mechanics. 2 semester hours. Each semester.
The physical properties of soil which govern its behavior as a material for highway surfaces or foundations; the behavior of soil when used as a material of construction in fills and dams. Six hours of laboratory a week. Prerequisite or concurrent: Ap. Mech. 202. Charge, $1.50. Koenitzer.

FOR GRADUATE CREDIT

301. Research in Materials of Construction. Credit to be arranged. Each semester and summer.
Many problems related to materials used in engineering construction offer attractive fields of research. A number of special pieces of apparatus in addition to the usual equipment of strength-of-materials laboratory are available for this work. The results of such investigations, if suitable, may be incorporated in bulletins of the Engineering Experiment Station, or furnish materials for the master's thesis. Prerequisite: Consult instructors. Scholer, Robert.

Architecture

Professor Weigel
Professor Helm
Professor Wichers
Assistant Professor Jones
Assistant Professor Wasserman
Instructor DeZurko
Instructor Deyoe
Instructor Didinger

Students should consider the advantages of combining the work in architectural engineering and in architecture, receiving the degree of Bachelor of Science in Architectural Engineering at the end of the fourth year, and the degree of Bachelor of Science in Architecture at the end of the fifth year. Students wishing to combine both curriculums should enroll in the Curriculum in Architectural Engineering for the first three years.

All drawings or designs made by the student during the course become the property of the department, to be used or returned at the discretion of the faculty.

FOR UNDERGRADUATE CREDIT

101. Elements of Architecture I. 4 semester hours. Each semester.
A study of the fundamentals or architectural design by their application in the original solution and presentation of simple architectural problems. and a study of Architectural Shades and Shadows. Twelve hours of laboratory a week. Charge, $1. Wichers, Didinger.

102. Elements of Architecture II. 4 semester hours. Each semester.
A continuation of Arch. 101 and a study of architectural perspective drawing. Twelve hours of laboratory a week. Prerequisite: Arch. 101. Charge, $1. Wichers, Didinger.

112. Freehand Drawing I. 2 semester hours. Each semester and summer.
A basic course in the fundamentals of freehand drawing. Six hours of laboratory a week. Helm, Wichers.

113. Freehand Drawing II. 2 semester hours. Each semester and summer.
A continuation of Arch. 112. Six hours of laboratory a week. Prerequisite: Arch. 112. Helm, Wichers.

116. Pencil Sketching. 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Arch. 112. Helm.

117. Still-Life Drawing. 2 semester hours. First semester and summer.
Sketches in various media of still-life groups in the studio and out-of-doors. Six hours of laboratory a week. Prerequisite: Arch. 112. Helm.

118. Water Color I. 2 semester hours. Each semester and summer.
Rudiments of water-color painting; translation and theory of color. Sketching of simple objects and groups of objects; includes both studio and outdoor sketching. Six hours of laboratory a week. Prerequisite: Arch. 116 or approval of instructor. Helm.

119. Water Color II. 2 semester hours. Each semester and summer.
Advanced study in the technique of the medium. Includes both studio work and outdoor sketching. Six hours of laboratory a week. Prerequisite: Arch. 118. Helm.

120. Interior Design. 2 semester hours. First semester and summer.
A study of the principles of interior architecture. Six hours of laboratory a week. Prerequisite: Arch. 118, 125, and 145. Deposit, $1. Helm.

121. Life Drawing I. 2 semester hours. Each semester and summer.
Six hours of laboratory a week. Prerequisite: Arch. 118. Charge, $3. Helm.

123. Life Drawing II. 2 semester hours. Each semester and summer.
A continuation of Arch. 121. Six hours of laboratory a week. Prerequisite: Arch. 121. Charge, $3. Helm.

124. Domestic Architecture. 2 semester hours. Second semester.
A study of the design and planning problems of the small home. Two hours of recitation a week. Wichers. An elective course intended for students not enrolled in the Department of Architecture.

125. Appreciation of Architecture. 3 semester hours. Second semester.
A survey of the history of architecture. Three hours of recitation a week. DeZurko. An elective, nontechnical course intended for students not enrolled in the Department of Architecture.

133. Clay Modeling. 2 semester hours. First semester and summer.
The making of clay models, plaster casts of simple decorative fragments and anatomical forms; and construction of relief maps. Six hours of laboratory a week. Prerequisite: Arch 117. Charge, $1. Helm.

134. Pen and Ink Drawing. 2 semester hours. Each semester and summer. Six hours of laboratory a week. Prerequisite: Approval of instructor. Helm.

137. Block Prints. 2 semester hours. First semester and summer. The carving of original compositions in linoleum and wood blocks. Six hours of laboratory a week. Prerequisite: Arch. 113 or approval of instructor. Charge, $1. Helm.

142. Architectural Design I. 3 semester hours. Each semester. A continuation of Arch. 102. Nine hours of laboratory a week. Prerequisite: Arch. 102. Charge, $1. DeZurko.

144. Architectural Design II. 3 semester hours. Each semester. A continuation of Arch. 142. Nine hours of laboratory a week. Prerequisite: Arch. 142. Charge, $1. DeZurko.

145. Architectural Design III. 5 semester hours. Each semester. Continuation of Arch. 144; time problems and rapid design sketches required at frequent intervals. Fifteen hours of laboratory a week. Prerequisite: Arch. 144. Charge, $1. DeZurko.

147. Architectural Design IV. 5 semester hours. Each semester. Continuation of Arch. 145. Fifteen hours of laboratory a week. Prerequisite: Arch. 145. Charge, $1. DeZurko.

154A. History of Architecture I. 2 semester hours. First semester. Preclassical and classical architecture. Two hours of recitation a week. DeZurko.

157A. History of Architecture II. 2 semester hours. Second semester. Medieval architecture. Two hours of recitation a week. Prerequisite: Arch. 154A. DeZurko.

158A. History of Architecture III. 2 semester hours. First semester. Italian and French Renaissance architecture. Two hours of recitation a week. Prerequisite: Arch. 157A. DeZurko.

160A. History of Architecture IV. 2 semester hours. Second semester. Continuation of Arch. 158A through modern architecture. Two hours of recitation a week. Prerequisite: Arch. 158A. DeZurko.

165. Commercial Illustration I. 2 semester hours. Each semester and summer.

The principles of advertising arrangements making various types of advertising design, such as newspaper advertisements, lettering, and posters, making cover designs for magazines, books, and trade catalogues; for headings, tail pieces, and decorative page arrangements; drawings carried out in black and white and in one or more colors. Six hours of laboratory a week. Helm.

170. Commercial Illustration II. 2 semester hours. Each semester and summer.

Continuation of Arch. 165. Six hours of laboratory a week. Prerequisite: Arch. 165. Helm.

179. History of Painting and Sculpture. 3 semester hours. First semester. The appreciation and development of painting and sculpture. Three hours of recitation a week. Helm. A required course for students in architecture and a recommended elective for other students.

187A. Building Materials and Construction. 3 semester hours. First semester.

An introduction to the properties and uses of the materials of construction, construction methods; occasional visits to buildings under construction. Three hours of recitation a week. Wichers.

188. Building Equipment. 2 semester hours. Second semester.
A study of plumbing, sanitation systems, and mechanical equipment of buildings. Two hours of recitation a week. Prerequisite: Arch. 187A. Wichers.

191. Working Drawings. 3 semester hours. Second semester.
Preparing working drawings for a residence. Nine hours of laboratory a week. Prerequisite: Arch. 142 and 187A. Wichers.

192. Theory of Structures I. 4 semester hours. Second semester.
Mathematical and graphical solutions of stresses in framed structures under static loading; practical problems in the design of wood, steel, and masonry construction; occasional inspection trips to buildings under construction. Two hours of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 116 and 121.

194A. Theory of Structures II. 5 semester hours. First semester.
A continuation of Arch. 192. Three hours of recitation and six hours of laboratory a week. Prerequisite: Arch. 192.

195. Professional Practice. 2 semester hours. Second semester.
The preparation of building documents; interpretation of building codes and analysis of documents of American Institute of Architects; office organization; client and contractor relationships. Six hours of laboratory a week. Prerequisite: Arch. 144 and 191. Weigel.

196. Theory of Structures III. 4 semester hours. Second semester.
A continuation of Arch. 194A, including design of reinforced concrete building frames; footings, columns, and floor systems, attention being given to costs and economical design. Two hours of recitation and six hours of laboratory a week. Prerequisite: Arch. 194A.

199. Inspection Trip. Required; no credit. First semester.
An inspection trip is made to one of the larger cities of the Middle West, usually Chicago, by the senior students in Architectural Engineering and Architecture. The inspection party is under the charge of one or more faculty members of the Department of Architecture. Time allotted to the trip is from three days to one week. Prerequisite: Senior classification. Approximate cost of trip, $50. Weigel.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Advanced Freehand Drawing. Credit to be arranged. Each semester and summer.
Prerequisite: Arch. 117 and 118. Helm.

217. Etching. 2 semester hours. Each semester and summer.
Technical principles and practice of etching on copper and zinc plate. Six hours of laboratory a week. Prerequisite: Arch. 117 and 134. Charge, $1. Helm.

221. Problems in Architectural Development. Credit to be arranged. Each semester and summer.
Under direct supervision of some member of the departmental staff, study of specific architectural problems. Prerequisite: Approval of instructor. Weigel, Wichers.

230. Oil Painting. Credit to be arranged. Each semester and summer.
Prerequisite: Arch. 118 or approval of instructor. Helm.

249. City Planning. 3 semester hours. Second semester.
A study of city planning, including transportation and street systems, parks and recreation facilities, public buildings and civic centers, subdivisions of land, restrictions and zoning. Nine hours of laboratory a week Prerequisite: Arch. 144. Weigel.

254. Architectural Design V. 7 semester hours. Each semester.
A continuation of Arch. 147. Twenty-one hours of laboratory a week. Prerequisite: Arch. 147. Charge, $1. Weigel.

257. Architectural Design VI. 7 semester hours. Each semester.
A continuation of Arch. 254. Twenty-one hours of laboratory a week. Prerequisite: Arch. 254. Charge, $1. Weigel.

FOR GRADUATE CREDIT

301. Advanced Architectural Design I. Credit to be arranged. Each semester and summer.
A study of the planning of important buildings and groups of buildings. Prerequisite: Arch. 257. Deposit, $1. Weigel.

304. Advanced Architectural Design II. Credit to be arranged. Each semester and summer.
A continuation of Arch. 301; may furnish material for the master's thesis. Prerequisite: Arch. 301. Deposit, $1. Weigel.

Chemical Engineering

Professor Greene
Instructor Jonnard
Instructor Pryor
Instructor Honstead

The instruction in the Department of Chemical Engineering deals primarily with those unit physical operations and unit chemical processes which, when coördinated and in their proper sequence, constitute a physical or chemical process as conducted on an industrial scale. Chemistry, physics, and mathematics are the underlying sciences of chemical engineering, and economics its guide in practice.

FOR UNDERGRADUATE CREDIT

150. Inspection Trip. Required; no credit. First semester.
Such manufacturing centers as Kansas City, St. Louis, and Chicago are visited. The cost of the trip varies from about $30 to not more than $50. Greene.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Chemical Engineering Materials. 2 semester hours. Each semester.
Manufacture, use, and properties of metallic and nonmetallic materials of construction. Two hours of recitation a week. Prerequisite: Chem. 103 and 104. Jonnard.

205. Industrial Stoichiometry. 2 semester hours. First semester.
Problems involving heat, material, and economic balances. Two hours of recitation a week. Prerequisite: Chem. 215. Staff.

221. Unit Operations I Recitation. 3 semester hours. Second semester.
Fundamentals of chemical engineering unit operations with emphasis on flow of fluids and flow of heat; application of these principles to equipment design. Three hours of recitation a week. Prerequisite: Math. 115, Chem. 260, and Chem. Engg. 205. Jonnard.

224. Unit Operations I Laboratory. 2 semester hours. Second semester.
Study of flow of fluids, flow of heat, drying and evaporation. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 221. Deposit, $10. Jonnard.

226. Unit Operations II Recitation. 3 semester hours. First semester.
A study of unit operations including filtration, humidification, absorption, distillation, and crystallization. Three hours of recitation a week. Prerequisite: Chem. Engg. 221. Greene.

229. Chemical Engineering Thermodynamics. 4 semester hours. Each semester and summer.

Thermodynamics applied to chemical engineering processes. Five hours of recitation a week. Prerequisite: Chem. Engg. 221. Staff.

232. Advanced Chemical Engineering Thermodynamics. 3 semester hours. Second semester.

Three hours of recitation a week. Prerequisite: Chem. Engg. 229. Greene.

234. Unit Operations II Laboratory. 2 semester hours. First semester.

Study of filtration, distillation, absorption. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 226. Deposit, $10. Greene.

236. Chemical Technology. 4 semester hours. Each semester and summer.

Applications of physical chemistry, unit operations, and economics to the chemical process industries. Four hours of recitation a week. Prerequisite: Chem. 224 and 260. Jonnard.

240. Unit-Process Laboratory. 2 semester hours. Second semester.

Investigation of the important unit processes. Six hours of laboratory a week. Prerequisite or concurrent: Chem. Engg. 236. Deposit, $10. Jonnard.

245. Chemical Engineering Plant Design. 4 semester hours. Second semester.

Unit operations, thermodynamics, reaction kinetics and economic balance, solution of the annual A. I. Ch. E. contest problem. Three hours of recitation and three of laboratory a week. Prerequisite: Chem. Engg. 226. Greene.

250. Problems in Chemical Engineering. Credit to be arranged. Each semester.

An introduction to chemical engineering research. Deposit, $10. Staff.

255. Chemical Engineering Analysis. 3 semester hours. First or second semester.

Graphical methods and dimensional analysis applied to chemical engineering problems. Three hours of recitation a week. Prerequisite: Chem. 261. Greene, Jonnard.

265. Distillation. 3 semester hours. First or second semester.

Advanced study of distillation. Three hours of recitation a week. Prerequisite: Chem. Engg. 226. Jonnard.

270. Absorption and Extraction. 3 semester hours. First or second semester.

Advanced study of absorption and extraction. Three hours of recitation a week. Prerequisite: Chem. Engg. 226. Jonnard.

280. Petroleum Refining Engineering I. 3 semester hours. First semester.

Properties of hydrocarbon mixtures, cracking polymerization, hydrogenation, separation by distillation. Three hours of recitation a week. Prerequisite or concurrent: Chem. Engg. 226. Greene.

285. Petroleum Refining Engineering II. 3 semester hours. Second semester.

Design and operation of plants, refinery economics, natural gasoline plants. Three hours of recitation a week. Prerequisite: Chem. Engg. 280. Greene.

290. Process Development. 2 semester hours. First or second semester.

Principles involved in the development of a chemical process from laboratory to completed plant. Two hours of recitation a week. Prerequisite: Chem. Engg. 221. Greene.

FOR GRADUATE CREDIT

301. Research in Chemical Engineering. Credit to be arranged. Each semester and summer.

Original investigations in the fields of unit operations, unit processes,

petroleum refining, and industrial utilization of Kansas raw materials. Work is usually correlated with the research projects of the engineering or agricultural experiment stations. Satisfactory results may be used for the master's thesis. Prerequisite: Consent of instructor. Staff.

305. Unit-Process Design. 3 semester hours. First semester.
Design of reaction equipment. Three hours of recitation a week. Prerequisite: Chem. Engg. 245 or equivalent. Greene.

Civil Engineering

Professor Conrad
Professor Frazier
Professor White
Associate Professor Crawford
Associate Professor Morse
Instructor Moeller

FOR UNDERGRADUATE CREDIT

102. Surveying I. 2 semester hours. Each semester and summer.
Care and use of engineers' surveying instruments. Six hours of laboratory a week. Prerequisite or concurrent: Math. 101. Charge, $1. Staff.

112. Surveying II. 4 semester hours. First semester and summer.
Land and topographic surveying, curves and earthwork; mine, city, and hydrographic surveying. Two hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 102. Charge, $2. White, Crawford.

125. Civil Engineering Drawing. 2 semester hours. Second semester.
Stereotomy, shades and shadows, isometric and perspective and the conventional methods of making drawings of structures. Six hours of laboratory a week. Prerequisite: Mach. Des. 111. White.

170. Thesis. Credit to be arranged. Each semester.
Conrad.

180. Inspection Trip. Required; no credit. First semester.
A trip of four to six days to one or more industrial centers. Approximate cost to student, $50.00. Prerequisite: Senior classification. Conrad.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Stress Analysis I Recitation. 4 semester hours. Each semester and summer.
Stresses in simple beams and framed structures with an introduction to deflections and redundants. Four hours of recitation a week. Prerequisite: Ap. Mech. 212. Staff.

205. Stress Analysis I Laboratory. 2 semester hours. Each semester and summer.
Graphical determination of stresses and deflections. Six hours of laboratory a week. Prerequisite or concurrent: Civ. Engg. 202. Staff.

208. Stress Analysis II. 3 semester hours. Second semester and summer.
Theory of statically indeterminate structures, secondary stresses, and stressed-skin structures; stresses in continuous, movable, cantilever, suspension and steel-arch bridges, rigid and space frames. Three hours of recitation a week. Prerequisite: Civ. Engg. 202. Conrad, Morse.

217. Astronomy and Geodesy. 3 semester hours. Second semester.
The elements of astronomy; precise methods of surveying and leveling. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 219. Charge, $1. Frazier, Morse.

219. Photogrammetry. 4 semester hours. Second semester.
Construction of mosaics and contour maps from aerial photographs. Two hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 112. Charge, $2. White, Morse.

222. Sanitary Engineering Recitation. 4 semester hours. Second semester.
Design, construction, and operation of water supply and sewerage systems. Three hours of recitation and three hours of laboratory a week. Prerequisite: Ap. Mech. 228 and Bact. 126. Frazier, Crawford.

228. Sanitary Engineering Design. 2 semester hours. Second semester and summer.
A continuation of Civ. Engg. 222 with emphasis on cost, estimates and methods of financing. Six hours of laboratory a week. Prerequisite: Civ. Engg. 222. Frazier.

233. Transportation Engineering. 5 semester hours. Second semester and summer.
The design, construction and maintenance of railroads, highways and airports. Three hours of recitation and six hours of laboratory a week. Prerequisite: Civ. Engg. 112. Charge, $2. Conrad, Frazier.

235. Applied Hydrology. 2 semester hours. Second semester.
A study of the sources of supply, amount and movement of underground and surface waters; their collection, control and utilization. Two hours of recitation a week. Prerequisite: Ap. Mech. 228. Conrad, White.

246. Design of Framed Structures. 3 semester hours. Second semester and summer.
Designs and general drawings of highway and railroad truss and girder bridges. Nine hours of laboratory a week. Prerequisite: Civ. Engg. 202. Staff.

248. Economics of Design and Construction. 3 semester hours. First semester.
A study of methods, construction equipment, and economic factors affecting engineering projects. Three hours of recitation a week. Prerequisite: Senior or graduate classification. Conrad.

249. Foundations. 2 semester hours. Each semester.
Design and construction of foundations for pavements, bridges and buildings. Two hours of recitation a week. Prerequisite: Ap. Mech. 290. Frazier, Crawford.

256. Reinforced Concrete Arches. 3 semester hours. Second semester.
The elastic theory applied to the design of reinforced concrete arches for bridges, buildings, and dams. Three hours of recitation a week. Prerequisite: Civ. Engg. 202. Conrad.

257. Reinforced Concrete Design Recitation. 2 semester hours. Second semester and summer.
A study of the characteristics of concrete as a building material and the design of reinforced concrete structures. Two hours of recitation a week. Prerequisite: Civ. Engg. 202. Staff.

258. Reinforced Concrete Design Laboratory. 2 semester hours. Second semester and summer.
Design drawings of reinforced concrete structures. Six hours of laboratory a week. Prerequisite or concurrent: Civ. Engg. 257. Staff.

267. Airport Design. 3 semester hours. First semester.
An advanced study of the problems encountered in the design, construction and maintenance of large airports. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 233. Conrad, Frazier.

274. Highway Design. 3 semester hours. Second semester.
Survey and preparation of highway plans based on economic studies. Two hours of recitation and three hours of laboratory a week. Prerequisite: Civ. Engg. 233. Staff.

FOR GRADUATE CREDIT

304. Research in Civil Engineering. Credit to be arranged. Each semester and summer.

Original investigation or advanced study in some field related to the practice of civil engineering. Prerequisite: Consult instructors. Staff.

Electrical Engineering

Professor Kloeffler
Professor Kerchner
Associate Professor Hunt
Associate Professor Jorgenson
Associate Professor Sitz
Associate Professor Selvidge
Associate Professor Martin
Assistant Professor Ward

Special laboratories are provided for the research conducted by the electrical engineering staff and for television and other investigations made by graduate students.

FOR UNDERGRADUATE CREDIT

102. Electrical Engineering C Recitation. 2 semester hours. Each semester and summer.

The fundamental principles of direct-current and alternating-current circuits and machinery. For nonelectrical students. Two hours of recitation a week. Prerequisite: Phys. 106. Jorgenson.

106. Electrical Engineering C Laboratory. 1 semester hour. Each semester and summer.

Experiments covering characteristics and applications of direct-current and alternating-current machinery. Three hours of laboratory a week. Prequisite or concurrent: Elec. Engg. 102. Charge, $1.50. Jorgenson.

113. Electrical Wiring. 1 semester hour. Each semester.

Study and application of National Electrical Code for electrical circuits and construction. Three hours of laboratory a week. Charge, $1.50. Hunt.

116. Illumination A. 2 semester hours. Second semester.

Systems, calculations, and specifications of interior wiring; principles of illumination. Two hours of recitation a week. Prerequisite: Phys. 103 or 106. Hunt.

190. Inspection Trip. Required; no credit. First semester.

A trip of four to six days to St. Louis, Chicago, and other cities for the purpose of making inspections of power plants and various industries illustrating the application of electrical engineering principles. Approximate cost of trip, $50. Prerequisite: Senior classification. Kloeffler.

195. Thesis. Credit to be arranged. Each semester.

A subject for thesis work is selected in consultation with the department head at the beginning of the senior year. Every opportunity is given to work out original ideas as to design and operation of electrical apparatus and machinery. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Principles of Electrical Engineering. 2 semester hours. Each semester and summer.

Principles of magnetic, electric, and electrostatic circuits. Two hours of recitation a week. Prerequisite: Phys. 106; prerequisite or concurrent: Math. 115. Jorgenson.

203. Direct-current Machinery Recitation. 4 semester hours. Each semester and summer.

Principles of operation and the characteristics of direct-current gener-

ators and motors. Four hours of recitation a week. Prerequisite or concurrent: Elec. Engg. 201. Kloeffler.

204. Direct-current Machinery Laboratory. 1 semester hour. Each semester and summer.

Characteristics of direct-current machines. Three hours of laboratory. Prerequisite or concurrent: Elec. Engg. 203. Charge, $1.50. Staff.

209. Alternating-current Circuits. 4 semester hours. Each semester and summer.

A mathematical treatment of alternating-current phenomena in single and polyphase circuits. Four hours of recitation a week. Prerequisite: Elec. Engg. 203; prerequisite or concurrent: Math. 121. Kerchner.

210. Alternating-current Machinery I Recitation. 3 semester hours. Each semester and summer.

Principles of design, construction, and operation of transformers, alternating-current generators, and polyphase induction motors. Three hours of recitation a week. Prerequisite: Elec. Engg. 209. Kerchner.

211. Alternating-current Machinery I Laboratory. 2 semester hours. Each semester and summer.

Experiments illustrating the characteristics of alternating-current circuits and transformers. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 210. Charge, $3. Kerchner.

212. Alternating-current Machinery II Recitation. 3 semester hours. Each semester and summer.

Continuation of Elec. Engg. 210, including synchronous motors, parallel operation of alternators, converters, induction and commutator alternating-current motors, rectifiers, and accessory apparatus. Three hours of recitation a week. Prerequisite: Elec. Engg. 210 and 211. Kerchner.

213. Alternating-current Machinery II Laboratory. 2 semester hours. Each semester and summer.

Continuation of Elec. Engg. 211 with experiments on machines listed in Elec. Engg. 212. Six hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 212. Charge, $3. Kerchner.

220. Electronics I. 2 semester hours. Each semester.

The fundamental principles of electron tubes. Two hours of recitation a week. Prerequisite: Phys. 105. Kloeffler.

222. Electronics II Recitation. 4 semester hours. Each semester.

A study of basic electronic circuits, amplifiers, oscillators, and rectifiers. Four hours of recitation a week. Prerequisite: Elect. Engg. 209 and 220. Martin.

223. Electronics II Laboratory. 2 semester hours. Each semester.

Basic electronic circuits and characteristics. Six hours of laboratory a week. Prerequisite or concurrent: Elect. Engg. 222. Charge, $3. Martin.

224. Industrial Electronics Recitation. 3 semester hours. Spring semester.

Fundamental principles of electron tubes and circuits and applications in industry. Three hours of recitation a week. Prerequisite: Either Elect. Engg. 102, 209, or 242. Martin.

225. Industrial Electronics Laboratory. 1 semester hour. Spring semester.

Industrial electronic equipment. Three hours of laboratory a week. Prerequisite or concurrent: Elect. Engg. 224. Charge, $1.50. Martin.

227. Electrical Measurements Recitation. 2 semester hours. Each semester.

Methods for electric and magnetic measurements; resistance, quantity, current, electromotive force, capacity, inductance. Two hours of recitation a week. Prerequisite: Elec. Engg. 201; prerequisite or concurrent: Elec. Engg. 209. Kloeffler.

228. Electrical Measurements Laboratory. 2 semester hours. Each semester. Measurements of resistance current, electromotive force, capacity, inductance, watts, energy. Six hours of laboratory a week. Prerequisite or concurrent: Elect. Engg. 227. Charge, $3. Staff.

237. Electrical Engineering M-I Recitation. 4 semester hours. Each semester and summer.

Theory of direct-current circuits and machines, magnetic circuits, and alternating-current circuits. Four hours of recitation a week. Prerequisite: Math. 114 and Phys. 106. Hunt.

238. Electrical Engineering M-I Laboratory. 1 semester hour. Each semester and summer.

Experiments on measurement of resistance and study of direct-current machine characteristics. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 237. Charge, $1.50. Hunt.

242. Electrical Engineering M-II Recitation. 3 semester hours. Each semester.

Theory of alternating-current machinery. Three hours of recitation a week. Prerequisite: Elec. Engg. 237 and 238. Hunt.

243. Electrical Engineering M-II Laboratory. 1 semester hour. Each semester.

Experiments on alternating-current circuits and alternating-current machinery characteristics. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 242. Charge, $1.50. Hunt.

244. Wire Communication I Recitation. 3 semester hours. Each semester. Principles of wire communication; telephone and telegraph switching systems, line loading, repeaters, and carrier currents. Three hours of recitation a week. Prerequisite: Elec. Engg. 209. Kloeffler, Martin.

245. Wire Communication I Laboratory. 1 semester hour. Each semester. Laboratory measurements as applied to wire communication networks. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 244. Charge, $1.50. Kloeffler, Martin.

248. Wire Communication II Recitation. 2 semester hours. Second semester. Transmission problems, networks, wave filters. Two hours of recitation a week. Prerequisite: Elec. Engg. 209 and 244. Martin.

249. Wire Communication II Laboratory. 1 semester hour. Second semester. Measurements as applied to wire communications networks. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 248. Charge, $1.50. Martin.

252. Radio Communication I Recitation. 3 semester hours. Each semester. An introduction to radio theory and practice, including a study of tuned circuits, electron tubes, and audio-frequency amplifiers. Three hours of recitation a week. Prerequisite: Elec. Engg. 209. Kerchner, Martin.

253. Radio Communication I Laboratory. 1 semester hour. Each semester. The application and operation of electron tubes in radio circuits; audio- and radio-frequency measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 252. Charge, $1.50. Martin.

255. Radio Communication II Recitation. 3 semester hours. Each semester. Radio-frequency amplifiers and oscillators, modulation; application to transmitter circuits; antennae and wave propagation. Three hours of recitation a week. Prerequisite: Elec. Engg. 252 and 253. Martin.

257. Ultra-High Frequency Techniques Recitation. 3 semester hours. Each semester.

Principles of radio communication with emphasis on microwaves and the

application of electron tubes in trigger, sweep, and pulse-forming circuits. Three hours of recitation a week. Prerequisite: Elec. Engg. 209, 244, 245, 252, 253, and concurrent with 255 and 259. Martin.

258. Ultra-High Frequency Techniques Laboratory. 1 semester hour. Each semester.

Experiments on the generation and application of microwaves outlined in Elec. Engg. 257. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 257. Charge, $1.50. Martin.

259. Radio Communication II Laboratory. 1 semester hour. Each semester.

Experiments on modulation, demodulation, impedance matching, and antenna measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 255. Charge, $1.50. Martin.

260. Illuminating Engineering Recitation. 2 semester hours. Second semester.

Photometry, light standards, principles of illumination, and illumination design. Two hours of recitation a week. Prerequisite: Math. 114 and Phys. 106. Hunt.

261. Illuminating Engineering Laboratory. 1 semester hour. Second semester.

Photometric measurements of light intensity, luminous flux, brightness, and illumination. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 260. Charge, $1.50. Hunt.

262. Advanced Illuminating Engineering. 3 semester hours. Second semester.

The various theories on the property of light, the theoretical distribution curves from light sources of various shapes, psychological and physiological phases of lighting, daytime illumination in buildings, and spectrophotometry. Three hours of recitation a week. Prerequisite: Phys. 106 and Math. 116. Hunt.

268. Airplane Electrical Equipment Recitation. 3 semester hours. Spring semester.

Electric control equipment and instruments for airplanes. Three hours of recitation a week. Prerequisite: Either Elect. Engg. 102, 209, or 242. Staff.

269. Airplane Electrical Equipment Laboratory. 1 semester hour. Spring semester.

Study of electrical equipment for airplanes. Three hours of laboratory a week. Prerequisite or concurrent: Elect. Engg. 268. Charge, $1.50. Staff.

280. Transmission and Distribution of Electrical Energy. 3 semester hours. Second semester.

Transmission line design, economic and technical features; and properties of cables and insulators. Three hours of recitation a week. Prerequisite: Elec. Engg. 210. Staff.

284. Transient Electrical Phenomena. 3 semester hours. Second semester.

Two phases of electrical phenomena: (a) transients in time, and (b) transients in space. Three hours of recitation a week. Prerequisite: Elec. Engg. 210 and Math. 121. Staff.

290. Economics of Electrical Engineering. 3 semester hours. Second semester.

The problems of depreciation, finance, rates, and public regulation in gas, electric, and telephone properties. Three hours of recitation a week. Prerequisite: Econ. 101 and Elec. Engg. 209. Kloeffler.

FOR GRADUATE CREDIT

301. Advanced Electric Circuits I. 3 semester hours. First semester.
Short-circuit currents in networks; equivalent impedance of multi-circuit transformers; analysis of unbalanced polyphase circuits and analysis of induction motor performance on unbalanced voltages; short transmission lines in steady state. Three hours of recitation a week. Prerequisite: Elec. Engg. 212. Kerchner.

304. Advanced Electric Circuits II. 3 semester hours. Second semester.
Long transmission lines in steady state with various terminal conditions; transmission charts; harmonics in circuits; general circuit constants; charts and transmission problems involving synchronous machines. Three hours of recitation a week. Prerequisite: Elec. Engg. 301. Kerchner.

313. High-Frequency Measurements Recitation. 2 semester hours. Second semester.
Theory of measurement at radio frequencies of current, voltage, frequency, modulation; antenna and transmission line characteristics. Two hours of recitation a week. Prerequisite: Elec. Engg. 209 and 252. Martin.

314. High-Frequency Measurements Laboratory. 1 semester hour. Second semester.
Applications of high-frequency measurements. Three hours of laboratory a week. Prerequisite or concurrent: Elec. Engg. 313. Charge, $1.50. Martin.

316. Advanced Electrical Theory. Credit to be arranged. Each semester. Prerequisite: Elec. Engg. 212. Staff.

336. Research in Electrical Engineering. Credit to be arranged. Each semester and summer.
Special investigations adapted to the needs of individual students. The laboratory work is correlated with the work of the Engineering Experiment Station and may be used as the basis of a master's thesis. Prerequisite: Elec. Engg. 210. Staff.

General Engineering

Dean Seaton
Assistant Dean Durland

101. Engineering Lectures. Required; no credit. Each semester.
Designed to acquaint freshman engineers and architects with fundamental principles of their profession and to give a general survey of the field. One hour of lecture a week, entire freshman year. Charge, 75 cents. Dean Seaton, other members of the engineering faculty, and visiting practicing engineers.

105. Engineering Assembly. Required; no credit. Each semester.
Presentation by students of abstracts and reviews of articles in the journals of their respective societies or in the technical press of their profession, and reports of engineering projects, industrial experiences, and original investigations; as far as possible conducted by the student branches of the professional engineering societies. Occasionally two or more of these individual groups unite for lectures by practicing engineers and by members of the engineering and college faculties. One hour of lecture a week, sophomore, junior, and senior years. Charge, 75 cents. Members of the engineering faculty.

Machine Design

Professor Pearce
Professor Durland
Professor Smutz
Associate Professor Gingrich
Associate Professor Wood
Instructor Sullivan
Instructor Messenheimer

The courses in drawing deal principally with the training of the freshman and sophomore students in visualization, and the application of graphical language to engineering problems, with particular reference to commercial drafting-room methods.

The courses in machine design deal with mechanical transmission of power, analysis of the action of machine parts, design of machine elements and of complete machines, aërodynamic forces, and airplane structures.

FOR UNDERGRADUATE CREDIT

101. Engineering Drawing. 2 semester hours. Each semester and summer. The selection and use of drawing instruments; construction of geometrical figures; lettering; orthographic projections and sections; pictorial methods of representation. Six hours of laboratory a week. Staff.

103. General Drawing. 3 semester hours. Each semester and summer. Technical sketching and mechanical drafting; graphic and pictorial drawing of building plans and mechanical equipment; blueprint reading; charts and graphs; and reproduction of drawings. Inexpensive set of instruments required. One hour of recitation and six hours of laboratory a week. Staff.

106. Descriptive Geometry. 2 semester hours. Each semester and summer. Problems involving the point, line and plane; the intersection and development of the surfaces of geometric solids; practical applications of the principles involved; emphasis on developing the student's ability to visualize drawings in the third angle. Six hours of laboratory a week. Prerequisite: Math. 102 or equivalent and Mach. Des. 101. Staff.

111. Machine Drawing I. 2 semester hours. Each semester and summer. Conventional representations; working drawings; dimensioning; the reproduction of drawings; checking for errors; arrangement of title and notes; sheet and metal drafting; simple perspective. Six hours of laboratory a week. Prerequisite: Mach. Des. 101. Staff.

118. Machine Drawing II. 2 semester hours. Each semester and summer. Machine sketching from parts of actual machines; complete working and assembly drawings; tracing and blue printing. Six hours of laboratory a week. Prerequisite: Mach. Des. 111. Staff.

121. Mechanism. 3 semester hours. Each semester and summer. A careful study of the fundamental elements of machinery with reference to the transmission of motion and force, and to their forms and arrangements in actual machines. Three hours of recitation a week. Prerequisite: Math. 101 and Mach. Des. 106. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204. Machine Design I Recitation. 3 semester hours. Each semester. The straining actions in machine elements; friction and lubrication; problems arising in the transmission of power and in the design of high-speed machinery; fastenings. Three hours of recitation a week. Prerequisite: Ap. Mech. 212 and Mach. Des. 111. Staff.

205. Machine Design I Laboratory. 2 semester hours. Each semester. Riveted joints designed in conformity to the A. S. M. E. Boiler Code; calculations for a number of simple machines and machine parts, paralleling the recitation class assignments. Six hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 204. Staff.

206. Aerodynamics I Recitation. 3 semester hours. Second semester.
A general introduction to aerodynamics. Three hours of recitation a week. Prerequisite: App. Mech. 202. Pearce.

207. Aerodynamics I Laboratory. 1 semester hour. Second semester.
Operation of wind tunnel. Three hours of laboratory a week. Prerequisite or concurrent: Mach. Des. 206. Pearce.

210. Machine Design II. 2 semester hours. Second semester.
Complete design of a small power shear with a graphical analysis of the shaft; the rotative diagram and balancing of an engine. Six hours of laboratory a week. Prerequisite: Mach. Des. 204 and 205. Pearce.

215. Machine Vibration. 3 semester hours. Second semester.
A general consideration of free and forced vibration in machines for various degrees of freedom; critical speed; vibration isolation. Three hours of recitation a week. Prerequisite: Ap. Mech. 202 and Math. 121. Pearce, Durland.

216. Aerodynamics II Recitation. 3 semester hours. First semester.
A continuation of Aerodynamics I. Three hours of recitation a week. Prerequisite: Mach. Des. 206 and App. Mech. 231. Pearce.

217. Aerodynamics II Laboratory. 1 semester hour. First semester.
Determination of performance curves and stability of an airplane. Prerequisite or concurrent: Mach. Des. 216. Pearce.

218. Propeller Theory and Design. 2 semester hours. First semester.
Theory of air screw, effect of propeller characteristics on airplane performance, and calculation of stresses. Prerequisite: App. Mech. 231 and Mach. Des. 206. Pearce.

220. Kinematics and Kinetics. 2 semester hours. Second semester.
A study of the velocities and accelerations in mechanisms and machines, and of the forces resulting therefrom. Two hours of recitation a week. Prerequisite: Mach. Des. 121 and Ap. Mech. 202. Pearce, Durland.

221. Airplane Design I. 3 semester hours. First semester.
A study of the general principles of airplane design. One hour of recitation and six of laboratory a week. Prerequisite: App. Mech. 212 and Mach. Des. 206 and 207. Pearce.

222. Airplane Design II. 3 semester hours. Second semester.
The design of an airplane, including performance calculations. One hour of recitation and six of laboratory a week. Prerequisite: Mach. Des. 221. Pearce.

225. Graphics of Engineering Formulas. 2 semester hours. Second semester.
Simple empirical equations; diagramming of formulas; nomographic or alignment charts; special slide rules. Two hours of recitation a week. Prerequisite: Math. 110. Pearce.

230. Patents and Inventions. 2 semester hours. First semester.
A brief consideration of the fundamental principles of United States patents and their relationship to the engineer; the inception and development of inventions. Two hours of recitation a week. Prerequisite: Junior or senior standing. Pearce.

260. Airplane Design and Construction. 3 semester hours. Second semester.
The structure and rigging of aircraft, the design directive of a small plane, the general layout and weight analysis. One hour of recitation and six of laboratory a week. Prerequisite: Mach. Des. 206 and App. Mech. 212. Pearce.

FOR GRADUATE CREDIT

301. Advanced Machine Design. Credit to be arranged. Each semester.
At the option of the student this course may include a study of some

advanced subject related to courses in this department. Prerequisite: Consult instructors. Pearce, Durland.

310. Research in Design. Credit to be arranged. Each semester and summer. Original investigation in some advanced subject related to courses in this department. This work may furnish material for the master's thesis. Prerequisite: Consult instructors. Pearce, Durland.

Mechanical Engineering

Professor Helander
Professor Mack
Professor Brainard
Associate Professor Tripp
Assistant Professor Flinner
Instructor Matting
Instructor Duncan

The instruction in the Department of Mechanical Engineering covers courses in thermodynamics, heat transfer, heat power engineering, air conditioning, refrigeration, and petroleum production. Additional courses closely allied to and a part of mechanical engineering are given in the departments of Machine Design and Shop Practice.

In addition to the equipment installed especially for experimental purposes, all the heating, power, ventilating, and pumping equipment of the College subserves the further purposes of experimental work.

FOR UNDERGRADUATE CREDIT

120. Steam and Gas Engineering C. 2 semester hours. Each semester. Steam boilers, steam engines, steam turbines, internal combustion engines and auxiliaries. Two hours of recitation a week. Prerequisite: Phys. 102 or 105. Staff.

135. Air Conditioning A. 3 semester hours. Second semester. Principles of heating, cooling, and ventilating; heat transmission; equipment used for heating, cooling, and ventilating. Three hours of recitation a week. Prerequisite: Phys. 102 or 105. Mack. Primarily for students who have not had engineering thermodynamics.

180. Inspection Trip. Required; no credit. First semester. A trip of three to six days to industrial centers for the purpose of inspecting industrial plants of special interest to mechanical engineering students. Prerequisite: Senior classification. Helander.

195. Thesis. Credit to be arranged. Each semester. Subject for investigation to be selected in consultation with the department head at the beginning of the senior year. Helander, Mack.

196. Professional Development. 1 semester hour. First semester. The social and professional aspects of engineering. One hour of recitation a week. Prerequisite: Senior standing. Helander.

FOR GRADUATE AND UNDERGRADUATE CREDIT

204. Heat Power Engineering A. 3 semester hours. Each semester. Power-plant equipment, fuels, and combustion. Three hours of recitation a week. Prerequisite: Mech. Engg. 208. Staff.

206. Heat Power Laboratory. 1 semester hour. Each semester. Laboratory course in power-plant equipment for nonmechanical engineering students. Three hours of laboratory a week. Prerequisite: Mech. Engg. 120; prerequisite or concurrent: Mech. Engg. 204. Charge, $2. Staff.

208. Engineering Thermodynamics. 4 semester hours. Each semester. Laws of the conversion of heat energy into mechanical energy; properties of fluids; gases, vapors, and gas vapor mixtures; flow and nonflow

processes; power generating cycles; air compressions and refrigeration. Four hours of recitation a week. Prerequisite: Math. 115. Staff.

220. Power Plant Design. 3 semester hours. Second semester.
Means for effecting economies in central station and industrial power plants; selection of equipment and analysis of station heat balance. One hour of recitation and six of laboratory a week. Prerequisite: Mech. Engg. 204. Helander.

221. Refrigeration. 2 semester hours. First semester.
Thermodynamics of refrigeration; systems of refrigeration and their operation; application of refrigeration to ice making, cold storage, and the cooling of gases, liquids, and solids. Two hours of recitation a week. Prerequisite: Mech. Engg. 208. Mack.

228. Air Conditioning. 3 semester hours. Each semester.
Psychrometry; heat transmission; air-conditioning equipment and systems; design problems. Two hours of recitation and three of laboratory a week. Prerequisite: Mech. Engg. 208. Mack.

230. Advanced Thermodynamics. 2 semester hours. First semester.
Two hours of recitation a week. Prerequisite: Mech. Engg. 208. Helander.

231. Internal Combustion Engines. 3 semester hours. Second semester.
Three hours of recitation a week. Prerequisite: Mech. Engg. 208. Brainard.

242. Mechanical Engineering Laboratory I. 2 semester hours. Each semester.
Laboratory course in power-plant equipment for mechanical engineering students. Six hours of laboratory a week. Prerequisite or concurrent: Mech. Engg. 204. Charge, $4. Staff.

243. Mechanical Engineering Laboratory II. 2 semester hours. Each semester.
Power-generating equipment, fans, air-conditioning equipment, internal combustion engines, steam engines, turbines, and auxiliaries. Six hours of laboratory a week. Prerequisite: Mech. Engg. 242. Charge, $4. Staff.

246. Aeronautical Engineering Laboratory. 2 semester hours. Second semester.
Aircraft engines, propellers, engine accessories, and instruments. Six hours of laboratory a week. Prerequisite: Mech. Engg. 242. Charge, $4. Staff.

247. Aircraft Power Plants. 3 semester hours. Second semester.
Design and performance characteristics of airplane power plants. Three hours of recitation a week. Prerequisite: Mech. Engg. 231. Brainard.

251. Heat Transfer and Fluid Flow. 4 semester hours. Second semester.
Particular reference to heat exchangers, air preheaters, economizers, boilers, condensers, evaporators, and similar equipment. Three hours of recitation and three of laboratory a week. Prerequisite: Mech. Engg. 208. Helander.

260. Advanced Power-Plant Engineering. Credit to be arranged. Second semester.
An advanced course in the economic problems met with in the design of power plants and in the generation of power. Selection of equipment, choice of station heat balances, generation of by-product power in industries, and interconnections between utilities and industrial plants for the economical interchange of power. Prerequisite: Mech. Engg. 220. Helander.

270. Petroleum Production I. 3 semester hours. First semester.
Properties of petroleum; exploration methods; field developments; drilling; oil field hydrology; casing and well completion; and fishing tools and methods. Three hours of recitation a week. Prerequisite: Senior standing

in Department of Mechanical Engineering or permission of head of department. Brainard.

271. Petroleum Production II. 3 semester hours. Second semester.
Prime movers and fuels; production methods; methods of flowing and pumping wells; refining; storage; transportation. Two hours of recitation and three hours of laboratory a week. Prerequisite: Mech. Engg. 270. Charge, $2. Brainard. Laboratory.—Construction and study of oil field peg models; tests on oil-bearing sands; field trips to study equipment and operations.

FOR GRADUATE CREDIT

305. Research in Mechanical Engineering. Credit to be arranged. Each semester and summer.
The laboratory work is correlated with the work of the Engineering Experiment Station. Research in any field pertinent to subjects taught in the Department of Mechanical Engineering. Prerequisite: Consult instructors. Helander, Mack.

Shop Practice

Professor Carlson
Associate Professor Wilson
Assistant Professor Jones
Assistant Professor Lynch
Assistant Professor Moore
Assistant Professor Hostetter
Instructor Shaw
Instructor Smaltz
Instructor Darby
Instructor Carver
Instructor Dodge

The work in the Department of Shop Practice is planned to meet the needs of two classes of students: (1) Those who are preparing for the teaching field and need a general knowledge of the principles of industrial arts work in metal and wood, of the materials and equipment used, including their control and arrangement, and of methods of handling work and students in the laboratory, together with sufficient skill in the performance of the various tool operations to be able to instruct others; and (2) those in the courses in engineering who need to secure a general knowledge of machine operations and methods used in job shops and mass-production factories, and of the economical selection and control of the materials, machinery, buildings, and personnel used in the manufacturing industries.

FOR UNDERGRADUATE CREDIT

102. Shop A. 2 semester hours. Each semester and summer.
An introductory course in forging and heat treating, foundry practice and machine shop work. Six hours of laboratory a week. Charge, $3. Staff.

104. Auto Mechanics I. 4 semester hours. Each semester and summer.
A study of the automobile, its construction and maintenance. Two hours of recitation and six hours of laboratory a week. Charge, $5. Staff.

110. Aero Mechanics I. 4 semester hours. Each semester and summer.
A study of the airplane and its maintenance. Two hours of recitation and six hours of laboratory a week. Charge, $5. Staff.

118. Elementary Crafts for Teachers. 2 semester hours. Summer.
Exercises and projects suitable for pupils from the primary to eighth grade. Special instruction in methods of teaching, materials, and equipment. Six hours of laboratory a week. Charge, $3. Moore.

119. Reed Furniture Construction. 2 semester hours. Summer.
Exercises and instruction in methods of teaching this work. Six hours of laboratory a week. Charge, $2.50. Moore.

121. Woodwork I. 2 semester hours. First semester and summer.
Elementary woodwork. Six hours of laboratory a week. Charge, $2.50. Moore.

122. Finishing I. 2 semester hours. Second semester and summer.
A study of materials, processes, methods of applications of finishes for both wood and metal. Brush and spray equipment used. Six hours of laboratory a week. Prerequisite: Shop 121. Charge, $2.50. Moore.

126. Woodwork II. 2 semester hours. Second semester and summer.
Continuation of Shop 121. Six hours of laboratory a week. Prerequisite: Shop 121. Charge, $2.50. Moore.

131. Woodwork III. 2 semester hours. First semester and summer.
Advanced woodwork and cabinetmaking. Six hours of laboratory a week. Prerequisite: Shop 126. Charge, $2.50. Moore.

134. Methods of Teaching Industrial Arts. 3 semester hours. Each semester and summer.
See Department of Education, School of Arts and Sciences. One hour of recitation and six hours of laboratory a week. Prerequisite: Senior standing and approval of instructor. Charge, $2.50. Moore.

135. Wood Turning. 2 semester hours. Each semester and summer.
Practice in handling the lathe and turning tools. Six hours of laboratory a week. Charge, $2.50. Moore.

139. Woodwork IV. 2 semester hours. Second semester and summer.
An opportunity to specialize in wood finishing, carpentry work, cabinet work, or some other work of special interest to the student. Six hours of laboratory a week. Prerequisite: Shop 131. Charge, $2.50. Moore.

147. Carpentry. 3 semester hours. Each semester and summer.
Rafter cutting and erection, studding and siding work, making window and door frames, hanging doors, and similar operations on full-size construction work; making out bill of material; care and upkeep of tools. One hour of recitation and six of laboratory a week. Charge, $2.50. Moore.

150. Forging and Heat Treating. 1 semester hour. Each semester.
(a) Forging of iron and steel; (b) production equipment as used in the commercial forge shop; (c) operation of gas, oil, and electric furnaces, and the heat treatment of steel. Two hours of laboratory and one hour of outside preparation a week. Charge, $3. Lynch.

157. Blacksmithing. 1 semester hour. Each semester and summer.
Exercises closely related to work on the farm; designed to train teachers for work in rural communities. Three hours of laboratory a week. Charge, $2.50. Lynch.

161. Foundry I. 1 semester hour. Each semester.
(a) Bench, floor, and pit molding, use of molding and core machines, operating nonferrous furnaces and cupola; (b) study of commercial foundry equipment and the operation and control of the foundry. Three hours of laboratory a week. Charge, $1. Shaw.

165. Metals and Alloys. 2 semester hours. Each semester.
The manufacture and use of iron, steel, copper, aluminum and their alloys. Two hours of recitation a week. Prerequisite: Chem. 107 and 108, or may be taken with Chem. 108. Hostetter, Shaw.

166. Welding. 1 semester hour. Each semester and summer.
The theory and practice of fusion welding, covering gas and electric welding. Three hours of laboratory a week. Charge, $3. Lynch, Dodge.

167. Electric Welding. 1 semester hour. Each semester and summer.
The theory and practice of electric welding, including inspection methods. Three hours of laboratory a week. Prerequisite: Shop 166. Charge, $3. Lynch, Dodge.

168. Gas Welding. 1 semester hour. Each semester and summer.
The theory and practice of gas welding, including inspection methods.

Three hours of laboratory a week. Prerequisite: Shop 166. Charge, $3. Lynch, Dodge.

170. Machine Tool I. 2 semester hours. Each semester and summer.
Practice in chipping, filing, shaper and planer work; drilling and turning on the lathe. Six hours of laboratory a week. Charge, $5. Jones, Darby.

173. Sheet Metal A. 2 semester hours. Each semester and summer.
Covers developments, the use of templets, practice in soldering, folding, wiring, flanging, seaming, rolling, and the more common operations on sheet metal. Six hours of laboratory a week. Prerequisite: Mach. Des. 101 or equivalent. Charge, $2.50. Moore.

174. Safety. 2 semester hours. Each semester and summer.
Fundamentals of accident analysis and prevention. One hour of recitation and three hours of laboratory a week. Charge, $1. Smaltz.

175. Farm Shop Methods. 3 semester hours. Each semester and summer.
Babbitting, soldering, drilling and drill grinding, thread cutting with dies and taps, tool sharpening, belt lacing, repair of machinery, and other practical operations; designed to train teachers in farm shop work. One hour of recitation and six hours of laboratory a week. Prerequisite: Shop 147 and 157. Charge, $2.50. Moore.

180. Gaging. 1 semester hour. Each semester and summer.
Systems of measurements and the use of various types of gages and devices for checking industrial products. Three hours of laboratory a week. Charge, $1. Smaltz.

182. Industrial Control. 2 semester hours. Each semester and summer.
Supervisory and administrative problems essential in the control of industrial production. Two hours of recitation a week.

192. Machine Tool II. 2 semester hours. Each semester and summer.
Progressive problems in turning, calipering, boring, reeming, taper turning, threading on the lathe, in chucking, use of forming tools, gear cutting; study of cutting edges and tool adjustments best suited to the different metals, cutting speeds and feeds. Six hours of laboratory a week. Prerequisite: Shop 170. Charge, $5. Jones, Darby.

193. Machine Tool III. 1 semester hour. Each semester and summer.
Work on the turret lathe, boring mill, hand and automatic screw machines, and grinders; practical work with jigs and fixtures and a study of rapid production of duplicate parts. Three hours of laboratory a week. Prerequisite: Shop 192. Charge, $2.50. Jones, Darby.

194. Inspection Trip. Required; no credit. First semester.
A trip of three to six days to industrial centers for inspection of establishments of special interest to industrial arts students. Prerequisite: Senior classification. Staff.

195. Thesis. Each semester.
Credit to be arranged. Carlson, Smaltz.

FOR GRADUATE AND UNDERGRADUATE CREDIT

246. Industrial Management. 3 semester hours. First semester.
Problems of the industrial executive, such as plant location, selection and arrangement of buildings and equipment, production, planning and control, simplification and standardization, time and motion study, job and methods of standardization, control of inventory and costs. Three hours of recitation a week. Prerequisite: Shop 170 and senior standing. Carlson.

250. Time and Motion. 2 semester hours. First semester.
The principles and practice of time and micro-motion analysis of work in the shop for the purpose of setting standards of performance and of im-

proving methods of production. One hour of recitation and three hours of laboratory a week. Prerequisite: Junior standing in engineering. Charge, $2.50. Smaltz.

255. Factory Design. 2 semester hours. Second semester.
Knowledge gained in shops and laboratories and in Shop 246 is used in the design of a factory. Six hours of laboratory a week. Prerequisite: Shop 246. Carlson.

261. Advanced Shop Practice. Credit to be arranged. Each semester and summer.
Opportunity is offered to specialize to a limited degree along certain lines such as heat treatment of steel, oxyacetylene and arc welding, jig fixtures and die work, metallography, pattern making, and any shop work that may be of special interest to the student. All assignments must be approved by the Head of the Department of Shop Practice. Charge varies with subject matter. Prerequisite: Consult instructor. Staff.

262. Metallography I. 1 semester hour. Each semester.
The microscopic constituents of the different grades of iron and steel; changes in the structure and properties as produced by heat treatment, mechanical working, and composition. Three hours of laboratory a week. Prerequisite: Shop 165. Charge, $2.50. Hostetter.

263. Physical Metallurgy. 2 semester hours. Second semester and summer.
An advanced study of the structure, properties, and uses of the more common metals and alloys involving heat and mechanical treatment and casting. Two hours of recitation a week. Prerequisite: Shop 262. Hostetter.

264. Aircraft Materials and Fabrication. 3 semester hours. Each semester and summer.
Materials and methods employed in fabricating airplanes. One hour of recitation and six hours of laboratory a week. Prerequisite: Ap. Mech. 212 and 220, Shop 165 and 262. Charge, $3. Staff.

265. Metallography II. 2 semester hours. Each semester and summer.
A continuation of Shop 262, nonferrous metals, with special attention to photomicrographic analysis. Six hours of laboratory a week. Prerequisite: Shop 262. Charge, $5. Hostetter.

274. General Shop Organization. 3 semester hours. Second semester and summer.
A course covering the organization, methods of teaching, and equipment for the general shop. One hour of recitation and six hours of laboratory a week. Prerequisite: Shop 147, 157, 161, 167, 168, 170, 173, and Elec. Engg. 113. Charge, $2.50. Moore.

286. Shop Practice Teaching. Credit to be arranged. Each semester and summer.
Actual laboratory teaching experience under the supervision of an instructor. Work covers the outlining, preparation, and presentation of assignments and the supervision of the work; procurement of materials and equipment, shop layouts and upkeep, and general considerations. Insofar as possible the course is adapted to the particular needs of the student. All assignments must be approved by the Head of the Department of Shop Practice. Prerequisite: Consult instructor. Staff.

FOR GRADUATE CREDIT

301. Research in Shop Practice. Credit to be arranged. Each semester and summer.
Investigations of interest to the individual student. May be used as the basis of the master's thesis, and is usually correlated with the work of the Engineering Experiment Station. Prerequisite: Consult instructors. Staff.

The Engineering Experiment Station

Roy Andrew Seaton, *Director.*

The Engineering Experiment Station was established March 24, 1910, by the Board of Regents for the purpose of carrying on tests and research work of engineering and manufacturing value to the state of Kansas, and of collecting, preparing, and presenting technical information in a form readily available for the use of the industries and the people of the state. All the work of the Experiment Station is intended to be of direct importance to Kansas.

All the equipment of the engineering and scientific laboratories, the shops, and the College power plant are available for the work, while the personnel of the station consists of members of the teaching staff from the departments of the School of Engineering and Architecture and from other scientific departments whose work is directly related to the work of this school, and others employed especially for the work of the station.

Among the investigations now being carried on are: Road materials resources of Kansas; durability of concrete; Portland cements; mineralogy and petrography of concrete aggregates; methods of stabilization of soil particles in asphalts; Kansas airport problems; deterioration of concrete silos; farm refrigeration; farm fencing; soil and water conservation; uses of materials in farm shops; wind-electric plants; kitchen and bathroom design; residential construction units; early-Kansas church architecture; early-Kansas military architecture; school shops for vocational agriculture and industrial arts instruction; visual aids for drawing instruction; Kansas coal; starch production from sorghum grains; mixing and extraction as chemical engineering unit operations; binders for foundry cores; cutting-tool performance; electrolytic polishing and etching of metals; ductility of welded joints; television apparatus; scattering of ultra-short radio waves; electromagnet design for removing metal tire hazards from highways; survey of Kansas industrial power generation; and economic and thermodynamic factors in power generation.

The testing laboratories of this station have been made available by law† for the use of the State Highway Commission and the state highway engineer, and the road materials for use in state road construction are tested in these laboratories.

Some of the results of the investigations are published as bulletins of the Engineering Experiment Station, which are sent free to any citizen of the state upon request. Forty-one such bulletins have been published. Besides issuing these bulletins, the station answers yearly many hundreds of requests for information upon matters coming within its field.

Requests for bulletins and general correspondence should be addressed to Engineering Experiment Station, Manhattan, Kan. Requests for information in specific matters should be addressed, as far as possible, to the heads of departments in whose fields the particular matters lie.

† Chapter 281, Laws of 1931.

The School of Home Economics

MARGARET M. JUSTIN, *Dean*

The objectives of the program in home economics are not merely to increase the student's stock of information, but to stimulate interest in continued study or research, to develop accuracy in detail, to teach discrimination with regard to criteria by which to interpret results, and to cultivate an attitude of economic and social responsibility.

The curriculums as outlined below are arranged to meet the needs of those who wish to teach, those who wish to enter graduate courses leading to technical or professional work, and those who wish to apply their knowledge to various problems of home life, or to industry and social service. The education in home economics includes the study of the scientific principles underlying the sanitary requirements of the home; food and nutrition; textiles and home furnishings; the wise expenditure of time, money, and energy. It also includes study of the principles underlying the practice of physical and mental health; the preparation of appetizing, nutritious food; the application of artistic standards to the selection and construction of clothing and to the home; the guidance of children, and an understanding of family relationships. Life in the residence hall, in which the student participates in the numerous duties pertaining to the routine of living, is a sustaining influence in the mastery of instruction offered in the classroom and laboratory, and is desirable for all students not participating otherwise in group life.

Two curriculums in this School lead to the degree Bachelor of Science in Home Economics, and a five-year curriculum leads to the degree Bachelor of Science in Home Economics and Nursing.

Curriculum in Home Economics

Since scientific knowledge is fundamental in the administration of the home, courses in the sciences are given as a foundation for education in home economics. The time of the student is about equally divided among the purely technical subjects, the fundamental sciences, and studies of general interest. In the junior and senior years opportunity for choice of electives makes it possible for students to specialize in some chosen line. There is provision for electives to be chosen in groups approved by the faculty or by the student's dean. This choice of electives will be made during the first semester of the sophomore year.

This curriculum is recommended to those who desire a general education in home economics or who have not yet determined the special fields in which they wish to major. It is the curriculum to be chosen by those who wish to teach home economics or to engage in home demonstration work.

Certificate for Teaching Home Economics

The student who desires to secure the degree of Bachelor of Science, and to qualify for the three-year Kansas state teacher's certificate, renewable for life and valid in any high school or other public school in the state, should elect certain courses in the Department of Education and other technical courses which are essential for vocational home economics and desirable for all teaching of home economics. These courses are as follows:

Educational Subjects		Technical Subjects	
Educ. Psychology, Educ. 109	3(3-0)	Child Guidance I, Child Welf. 201,	3(2-3)
Educ. Admin., Educ. 210	3(3-0) *or*	Home Mgmt., Hshld. Econ. 240	3(1-6)
Prin. of Secondary Educ., Educ. 236,	3(3-0)	Advanced Dress Design, Clo. and Text., 211	3(0-9) *or*
Vocational Educ., Educ. 241	3(3-0)	Problems in Clothing Design, Clo. and Text., 214	3(0-9)
Methods of Teach. Home Economics, Educ. 132	3(3-0)	School Food Service, Inst. Mgmt. 221	3(2-3)
Teach. Particip. in Home Economics, Educ. 160	3(-)		

The stipulated course for the certificate for teaching home economics requires 27 out of the 36 or 38 hours of possible electives allowed in the Curriculum in Home Economics. The remaining 9 or 11 hours of electives are to be selected from among nontechnical courses outside the School of Home Economics, with the advice and approval of the dean. In the choice of courses for these hours, consideration is given to the desirability of directing the student's interest and efforts toward the exploration and mastery of some one field, such as Social Science, Modern Language, Mathematics, Music, Physical Education, Journalism, Physical or Biological Science and Art.

Completion of the Curriculum in Home Economics with these electives entitles the individual to the three-year certificate, renewable for life, issued by the State Board of Education and to the Vocational Homemaking certificate issued by the State Board of Vocational Education.

Adoptation of Curriculum in Home Economics for Art and Home Economics

The courses in this curriculum give background for professional work in art and for teaching art.

Curriculum in Dietetics and Institutional Management

This curriculum is designed to meet the needs of the student who wishes to become a dietitian or director of food services in a college residence hall, cafeteria, tearoom, or hotel. It meets the requirements set by the American Dietetic Association for entrance to accredited hospitals and at the same time provides practical experience for the management of the food unit of various types of institutions. Residence in the college residence hall for one semester is required. Usually after graduation the student serves an apprenticeship in a recommended establishment.

Curriculum in Home Economics and Nursing

The five-year curriculum is offered in affiliation with the University of Kansas hospitals. The first two and one-half years are spent in the College. The last two and one-half years are spent in the school of nursing of the hospitals, where theoretical instruction and practical experience in nursing are given. Upon completion of the work at the hospitals, the student presents her application for graduation to the registrar of Kansas State College.

Home Economics in the Summer School

In addition to the regular instruction in home economics, the School offers numerous courses in the Summer School. These courses apply directly on the curriculums in Home Economics, or on graduate credit.

Full information concerning the courses offered is contained in the Summer School number of the Kansas State College *Bulletin,* which may be obtained upon application to the Director of Admissions of the College.

Curriculum in Home Economics

FRESHMAN

First Semester				Second Semester			
	Course		*Sem. Hrs.*		*Course*		*Sem. Hrs.*
Comp.	101	Man's Phys. World I	4 or	Comp.	102	Man's Phys. World II	4 or
Chem.	101	Gen. Chem	5	Chem.	122	Gen. Org. Chem	5
Fds. & Nutr.	102	Foods I	5	Engl.	112	Writ. Communications II	2
Engl.	111	Writ. Communications I	3	Art	130	Cost. Des. I	2
Art	101A	El. Des. I	2	Ch. Welf.	101	Personal Health	2
Gen. H. E.	131	H. E. Fresh. Lect	R	Sp.	111	Oral Communications	2
Phys. Educ.	151	Phys. Educ. W	R	Clo. & Tex.	113	Fund of Clo	2
				Gen. H. E.	131	H. E. Fresh. Lect	R
				Phys. Educ.	151	Phys. Educ. W	R
Total			14 or 15	Total			14 or 15

SOPHOMORE

First Semester				Second Semester			
Comp.	131	Man and Cult. World I	4	Comp.	132	Man and Cult. World II	4
Comp.	111	Biol. in Rel. to Man I	4	Comp.	112	Biol. in Rel. to Man II	4
Phys.‖§¶	109	Hhld. Physics	4	Art	113	Int. Dec. I	2
Fds. & Nutr.	107	Foods II	3	Clo. & Tex.§	117	Textiles	2
Gen. H. E.	140	Home Projects	R	Hhld. Ec.	107	The House	3
Gen. H. E.	133	H. E. Lect	R	Gen. H. E.	133	H. E. Lect	R
Phys. Educ.	151	Phys. Educ. W	R	Phys. Educ.	151	Phys. Educ. W	R
Total			15	Total			15

JUNIOR

First Semester				Second Semester			
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Clo. & Tex.	114	Applied Dress Des	3	Ch. Welf.	211	Family Health	3
Hhld. Ec.	263	Family Finance	2			Electives	8
		Electives	6 or 8	Gen. H. E.	133	H. E. Lect	R
Gen. H. E.	140	Home Projects	R				
Gen. H. E.	133	H. E. Lect	R				
Total			15 or 17	Total			15

SENIOR

First Semester				Second Semester			
Fds. & Nutr.	206	Nutrition and Dietetics	5			Electives	15
Fds. & Nutr.	207	Nutrition and Diet. Lab.	1	Gen. H. E.	134	H. E. Sr. Lect	R
Ch. Welf.	216	The Family	2				
		Electives	7				
Gen. H. E.	133	H. E. Lect	R				
Total			15	Total			15

Number of hours required for graduation, 120.

‖ An option in Art consisting of Elem. Des. II and Drawing I may be substituted on approval of the Head of the Department of Art and the Dean of the School.

§ An option in Child Guidance may be substituted on approval of the Head of the Department of Child Welfare and Euthenics and the Dean of the School.

¶ Subject to prerequisite, General Physics may be substituted if a student plans to pursue research later.

Adaptation of Curriculum in Home Economics for Art and Home Economics

Freshman and Sophomore years as provided by the Curriculum in Home Economics.

JUNIOR

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Comp.	121	Man and Soc. World I	4	Comp.	122	Man and Soc. World II	4
Clo. & Tex.	114	Appl. Dress Des	3	Ch. Welf.	211	Family Health	3
Art	134	Cost. Des. II	2	Art	105	Adv. Design	2
Art	127	Lettering	2	Art	102	Des. in Crafts I	2
Art	103	Inter. Design	2	Art	121	Drawing II	2
Art	120	Drawing I	2			Elective	3
Gen. H. E.	140	Home Projects	R	Gen. H. E.	133	H. E. Lect	R
Gen. H. E.	133	H. E. Lect	R				
Total			15	Total			16

SENIOR

First Semester				Second Semester			
Fds. & Nutr.	206	Nutrition and Diet	5	Art	202	Principles of Art II	3
Fds. & Nutr.	207	Nutrition and Diet. Lab	1	Art	138	Cost. Design III	2 or
Ch. Welf.	216	The Family	2	Art	117	Int. Dec. III	2
Ch. Welf.	201	Child Guidance I	3	Art	212	Cost. Illustrations	2
Art	201	Principles of Art I	3			Electives	8
		Elective	2	Gen. H. E.	134	H. E. Sr. Lect	R
Gen. H. E.	133	H. E. Lect	R				
Total			16	Total			15

Number of hours required for graduation, 120.

Foods and Foods Research

Students desiring to major in foods and foods research should choose the Curriculum in Home Economics selecting the alternates for Man's Physical World I and II. Chemistry I, 5 hours should be substituted for General Chemistry, 5 hours and Organic Chemistry I, 5 hours for General Organic Chemistry, 5 hours. Electives should include the courses listed below:

			Semester hours
Chem.	103	Chemistry II Rec	3
Chem.	104	Chemistry II Lab	2
Chem.	226	Organic Chemistry II	4
Chem.	211	Quant. Analysis A	3
Chem.	212	Quant. Analysis B	3
Chem.	240	Biochemistry	5
Chem.	228	Qualitative Organic Analysis	3
Math.	107	College Algebra A	5
Math.	101	Plane Trigonometry	3
Foods and Nutr.	255	Experimental Cookery	2
Foods and Nutr.	245	Problem in Foods	2
Chem.	264	Food Technology	3
Chem.	257	Food Analysis	3
Mill. Ind.	207	Experimental Baking	4
Foods and Nutr.	253	Seminar in Foods	2

Medical Technician's Option

Students desiring to become medical technicians should choose the Curriculum in Home Economics selecting the alternates for Man's Physical World I and II and omitting Biology in Relation to Man I and II. Chem. I, 5 hours should be substituted for Gen'l Chem., 5 hours and Gen'l Physics I, 4 hours for Household Physics, 4 hours. Electives should include the courses listed below which are approved by the Registry of Medical Technologists.

			Semester hours
Zoöl.	105	General Zoölogy	5
Zoöl.	221	Human Physiology	4
Chem.	103	Chemistry II Rec	3
Chem.	104	Chemistry II Lab	2
Chem.	240	Biochemistry	5
Chem.	212 or 215	Quantitative Analysis	3 or 5
Phys.	103	General Physics II	4
Bact.	101	General Microbiology	3
Bact.	206	Bacteriology of Human Diseases	5
Bact.	229	Immunology	5
Math.	104 or 107	College Algebra	3 or 5
Math.	101	Plane Trigonometry	3

Curriculum in Dietetics and Institutional Management

FRESHMAN

First Semester				Second Semester			
Course			*Sem. Hrs.*	*Course*			*Sem. Hrs.*
Engl.	111	Written Comm I	3	Engl.	112	Written Comm. II	2
Chem.	110	Gen. Chem	5	Chem.	122	Gen. Org. Chem	5
Art	101A	Elem. Des. I	2	Art	130	Cost. Des. I	2
Fds. & Nutr.	102	Foods I	5 or	Fds. & Nutr.	102	Foods I	5 or
Ch. Welf.	101	Personal Health	2 and	Ch. Welf.	101	Personal Health	2 and
Phys.*	109	Household Physics	4	Phys.*	109	Household Physics	4
Gen. H. E.	131	H. E. Fr. Lect	R	Gen. H. E.	131	H. E. Fr. Lect	R
Phys. Educ.	151	Phys. Educ. W	R	Phys. Educ.	151	Phys. Educ. W	R
Total			15 or 16	Total			14 or 15

SOPHOMORE

First Semester				Second Semester			
Comp.	131	Man in Cult. World I	4	Comp.	132	Man in Cult. World II	4
Zoöl.	105	Gen. Zoöl	5	Zoöl.	221	Human Physiology	4
Fds. & Nutr.	107	Foods II	3	Comp.	122	Man in Soc. World II	4
Comp.	121	Man in Soc. World I	4	Clo. & Tex.	113	Fund. of Clo	2
Gen. H. E.	140	Home Projects	R	Sp.	111	Oral Communications	2
Gen. H. E.	133	H. E. Lect	R	Gen. H. E.	133	H. E. Lect	R
Phys. Educ.	151	Phys. Educ. W	R	Phys. Educ.	151	Phys. Educ. W	R
Total			16	Total			16

JUNIOR

First Semester				Second Semester			
Bact.	101	General Micro	3	Chem.	240	Bio. Chem	5
An. Husb.	176	Meats H. E	1	Inst. Mgt.	101	Inst. Cookery	4
Clo. & Tex.	114	Applied Dress Des	3 or	Inst. Mgt.	103	Inst. Food Buying	2
Clo. & Tex.	117	Textiles	2	Inst. Mtg.	105	Inst. Furn. and Equip	2
Art	113	Inter. Dec. I	2			Electives	3
		Electives	1 or 2	Gen. H. E.	133	H. E. Lect	R
Fds. & Nutr.	206	Nutr. and Dietetics	5				
Fds. & Nutr.	207	Nutr. and Dietetics Lab	1				
Gen. H. E.	140	Home Projects	R				
Gen. H. E.	133	H. E. Lect	R				
Total			16	Total			16

SENIOR

First Semester				Second Semester			
Educ.	133	Meth. of Teaching for Diet. Students	3	Ch. Welf.	201	Child Guid. I	3
Fds. & Nutr.	255	Experimental Cook	2	Inst. Mgt.	225	Tea Room Mgt	3 or
Inst. Mgt.	201	Org. and Admn. of Inst	2	Fds. & Nutr.	215	Field Work in Nutr	3
Inst. Mgt.	202	Org. and Admn. of Inst.Lab	2	Econ.	293	Inst. Accounting	2
Fds. & Nutr.	254	Seminar in Nutr	2 or			Electives	7
Fds. & Nutr.	253	Seminar in Foods	2	Gen. H. E.	134	H. E. Sr. Lect	R
Fds. & Nutr.	205	Diet. for Abn. Cond	2				
		Electives	3				
Gen. H. E.	133	H. E. Lect	R				
Total			16	Total			15

Number of hours required for graduation, 125.

* See footnote regarding Household Physics under Curriculum in Home Economics.

Curriculum in Home Economics and Nursing

FRESHMAN

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Engl.	111	Written Comm. I	3	Engl.	112	Written Comm. II	2
Chem.	110	Gen. Chem	5	Chem.	122	Gen. Org. Chem	5
Fds. & Nutr.	102	Foods I	5	Zoöl.	105	Gen. Zoöl	5
Educ.	184	Gen. Psych	3	Ch. Welf.	101	Personal Health	2
Gen. H. E.	131	H. E. Fr. Lect	R	Sp.	111	Oral Communications	2
Phys. Educ.	151	Phys. Educ. W	R	Gen. H. E.	131	H. E. Fr. Lect	R
				Phys. Educ.	151	Phys. Educ. W	R
Total			16	Total			16

SOPHOMORE

First Semester				Second Semester			
Comp.	131	Man in Cult. World I	4	Comp.	132	Man in Cult. World II	4
Fds. & Nutr.	107	Foods II	3	Ch. Welf.	201	Child Guid. I	3
Zoöl.	123	Human Anatomy	5	Zoöl.	221	Human Phys	4
Econ.	151	Sociology	3	Bact.	101	Gen. Micro	3
Gen. H. E.	140	Home Projects	R	Ch. Welf.	216	The Family	2
Gen. H. E.	133	H. E. Lect	R	Gen. H. E.	133	H. E. Lect	R
Phys. Educ.	151	Phys. Educ. W	R	Phys. Educ.	151	Phys. Educ. W	R
Total			15	Total			16

JUNIOR

First Semester				Second Semester
Chem.	240	Bio. Chem	5	Second semester of this year and the senior year to be replaced by two and one-half years at the University of Kansas hospitals.
Fds. & Nutr.	206	Nutr. and Diet	5	
Fds. & Nutr.	207	Nutr. and Diet. Lab	1	
Ch. Welf.	110	Introd. to Nursing Arts	3	
Ch. Welf.	105	Hist. of Nursing	2	
Gen. H. E.	133	H. E. Lect	R	
Total			16	

Number of semester hours required for graduation, 79 plus two and one-half years, acceptable work at the University of Kansas Hospitals in the following fields:

Theoretical Work	*Practical Work*
Professional Adjustments I and II	Medicine
Nursing Arts II	Surgery (including operating room)
Materia Medica	Pediatrics
Medical Nursing (including specialties)	Nursery
Surgical Nursing (including specialties)	Obstetrics
Dietotherapy	Dispensary
Obstetrical Nursing	Tuberculosis
Pediatric Nursing	Public Health
Principles of Public Health Nursing	
Principles of Public Hygiene and Sanitation	
Social Aspects of Nursing	

Groups of Electives for Students in the School of Home Economics

The groups given below are selected with a view to preparing students for the vocations in which home economics may be directly applied.

A sufficient number of hours may be chosen from any group to fill the elective requirement, or a smaller number of hours may be taken from a group and, for the remaining elective hours, advanced courses of related subject matter may be chosen.

Music may be added to any group, in a minimum of six hours.

Child Welfare

Sociology, Econ. 151	3(3–0)
Social Pathology, Econ. 258	3(3–0)
Family Relations., Child Welf. 240	2(2–0)
Field Work in Nutr., Foods and Nutr. 215	3(2–3)
Heredity and Eugenics, Zoöl. 216	2(2–0)
Child Guidance I, Child Welf. 201	3(2–3)
Seminar in Child Welfare and Euthenics, Child Welf. 226	1 or 2
Mental Tests, Educ. 260	3(3–0)
Parent Guidance, Child Welf. 232	2 to 3
Creative Arts for Young Children, Child Welf. 241	2(2–0)
Home Furnishing, Art 114	2(0–6)
Psych. of Childhood and Adolescence, Educ. 250	3(3–0)
Child Guidance II, Child Welf. 206	3(3–0)
Problems in Child Welfare and Euthenics, Child Welf. 221	1 to 5
Nutr. of Dev., Foods and Nutr. 210	2(2–0)
Psych. of Excep. Children, Educ. 266,	3(3–0)
Consumer Buying, Hshld. Econ. 272,	3(3–0)
Econ. Prob. of the Family, Hshld. Econ. 265	2(2–0)
Social Psychology, Educ. 270	3(3–0)
Nursery School Mgmt., Child Welf. 242	2(2–0)
Children's Readings, Eng. 252	3(3–0)

Clothing Retailing

Public Speaking, Sp. 107	2(2–0)
Extemp. Speech II, Sp. 108	2(2–0)
Oral English, Eng. 232	3(3–0)
Elem. Journalism, Ind. Jour. 150	2(2–0)
Journalism for Women, Ind. Jour. 170	3(3–0)
Sociology, Econ. 151	3(3–0)
Accounting I, Econ. 133	3(2–3)
Psy. of Advertising and Selling, Educ. 265	3(3–0)
Psy. and Personnel Management, Educ. 273	3(3–0)
Methods of Teaching H. E., Educ. 132	3(3–0)
Adv. Dress Design, Clo. and Text. 211	3(0–9)
Adv. Textiles, Clo. and Text. 205	3(1–6)
Problems in Clothing Design, Clo. and Text. 214	3(0–9)
Clothing Economics, Clo. and Text. 201	3(3–0)
Consumer Buying, Hshld. Econ. 272,	3(3–0)
History of Costume, Clo. and Text. 225	2(2–0)
Principles of Advertising, Ind. Jour. 177	3(3–0)

Costume Design

Hist. of Costume, Clo. and Text. 225,	2(2–0)
Adv. Dress Design, Clo. and Tex. 211,	3(0–9)
Clothing Econ., Clo. and Text. 201	3(3–0)
Costume Illustration, Art 212	2(0–6)
Problems in Costume Design, Art 235,	2(0–6)
Oral English, Engl. 232	3(3–0)
Weaving I, Art 106	2(0–6)
Weaving II, Art 107	2(0–6)
The Arts of Mexico, Art 244	2(2–0)
Art of Primitive People, Art 246	2(2–0)
Art of Southwest Indians, Art 242	2(2–0)
Elem. Journalism, Ind., Jour. 150	2(2–0)
Journalism for Women, Ind. Jour. 170	3(3–0)
Ind. Writing, Ind. Jour. 157	3(1–6)
Radio Writing, Ind. Jour. 162	2(2–0)
Sociology, Econ. 151	3(3–0)
Pottery Design, Art 109	2(0–6)

Home Demonstration Work

Oral English, Eng. 232	3(3–0)
Public Speaking, Sp. 107	2(2–0)
Elem. Journalism, Ind. Jour. 150	2(2–0)
Journalism for Women, Ind. Jour. 170	3(3–0)
Household Equipment I, Hshld. Econ. 203	2(0–6)
Household Equipment II, Hshld. Econ. 205	2(0–6)
Consumer Buying, Hshld. Econ. 272,	3(3–0)
Home Management, Hshld. Econ. 240	3(1–6)
Marketing, Econ and Soc. 246	3(3–0)
History of Economic Thought, Econ. and Soc. 310	3(3–0)
Rural Sociology, Home Study	3(3–0)
Community Organization and Leadership, Econ. and Soc. 267	3(3–0)
Social Psychology, Educ. 270	3(3–0)
Child Guidance I, Child Welf. 201	3(2–3)
Child Guidance II, Child Welf. 206	3(3–0)
Experimental Cookery, Food Econ. and Nutr. 255	2(1–3)
School Food Service, Inst Mgnt. 221,	3(2–3)
Meats H. E., Animal Husb. 176	1(0–3)
Landscape Gardening, Hort. 125	3(3–0)
Vegetable Gardening, Hort. 133	3(2–3)
Problems in Clothing Design, Cloth. and Text. 214	3(0–9)
Design in the Crafts I, Art 102	2(0–6)
Methods of Teaching H. E., Educ. 132	3(3–0)
Methods of Adult Homemaking Classes, Educ. 234	1 to 3 hrs.
Teaching Participation in Home Economics, Educ. 160	3(3–0)
Problem in Extension Education, Educ. 249	1 hr.

Homemaking

Child Guidance I, Child Welf. 201... 3(2–3)
Sociology, Econ. 151..... 3(3–0)
Com. Organization, Econ. 267..... 3(3–0)
Problems in Foods, Foods and Nutr. 310..... 1 to 3
Home Mgmt., Household Econ. 240, 3(1–6)
World Classics I, Engl. 280..... 3(3–0)
Nutr. of Dev., Foods and Nutr. 210, 2(2–0)
Consumer Buying, Hshld. Econ. 272, 3(3–0)
Child Guidance II, Child Welf. 206.. 3(3–0)
Principles of Art I, Art 201..... 3(3–0)
Advanced Dress Design, Clo. and Text. 211..... 3(0–9)
Meats, H. E., An. Husb. 176..... 1(0–3)
Hist. of Engl. Literature, Engl. 181, 3(3–0)
Psyc. of Childhood and Adolescence, Educ. 250..... 3(3–0)
Econ. Prob. of the Family, Hshld. Econ. 265..... 2(2–0)
Food and Sanitary Bacteriology, Bact. 245..... 3(3–0)
Food and Sanitary Bacteriology Lab., Bact. 246..... 2(0–6)

Home Service and Food Demonstration Work

Methods of Teaching H. E., Educ. 132..... 3(3–0)
Hshld. Equipment I, Hshld. Econ. 203..... 2(0–6)
Hshld. Equipment II, Hshld. Econ. 205..... 2(0–6)
Home Mgmt., Hshld. Econ. 240..... 3(1–6)
Fund. of Demonstrations, Hshld. Econ. 256..... 2(0–6)
Exp. Cookery, Foods and Nutr. 255, 2(0–6)
Consumer Buying, Hshld. Econ. 272, 3(3–0)
Problems in Hshld. Econ., Hshld. Econ. 243..... 1 to 3
Problems in Foods, Foods and Nutr. 245..... 1(–)
Meats, H. E., An. Husb. 176..... 1(0–3)
Fieldwork in Nutr., Foods and Nutr. 215..... 3(2–3)
School Food Service, Inst. Mgmt. 221, 3(2–3)
Econ. Prob. of the Family, Hshld. Econ. 265..... 2(2–0)
Public Speaking, Sp. 107..... 2(2–0)
Extemp. Speech II, Sp. 108..... 2(2–0)
Oral English, Engl. 232..... 3(3–0)
Psych. and Personnel Mgmt., Educ. 273..... 3(3–0)
Elem. Journalism, Ind. Jour. 150.... 2(2–0)
Journalism for Women, Ind. Jour. 170 3(3–0)
Editing, Ind. Jour. 166..... 2(0–6)
Prin. of Advertising, Ind. Jour. 177.. 3(3–0)
Broadcasting Station Practice, Ind. Jour. 180..... 1(0–3)
Business Management, Econ. 126.... 2(2–0)
Photography, Phys. 151..... 2(1–3)
Sociology, Econ. 151..... 3(3–0)

Interior Decoration

Domestic Architecture, Arch. 124.... 2(2–0)
The Family, Child Welf. 216..... 2(2–0)
Landscape Gardening, Hort. 125.... 3(3–0)
Problems in Design, Art 217..... 2(0–6)
Problems in Interior Dec., Art 232... 4(0–12)
Pottery Design, Art 109..... 2(0–6)
Home Furnishing, Art 114..... 2(0–6)
Elem. Journalism, Ind. Jour. 150.... 2(2–0)
Journalism for Women, Ind. Jour. 170 3(3–0)
Ind. Writing, Ind. Jour. 157..... 3(1–6)
Radio Writing, Ind. Jour. 162..... 2(2–0)
Sociology, Econ. 151..... 3(3–0)
The Arts of Mexico, Art. 244..... 2(2–0)
Art of Primitive People, Art 246.... 2(2–0)
Art of Southwest Indians, Art 242.. 2(2–0)

Journalism

Elementary Journalism, Ind. Jour. 150..... 2(2–0)
Journalism for Women, Ind. Jour.170, 3(3–0)
Newspaper and Magazine Writing, Ind. Jour. 167..... 2(2–0)
Editing, Ind. Jour. 166..... 2(0–6)
Principles of Advertising, Ind. Jour. 177..... 3(3–0)
Industrial Writing, Ind. Jour. 157... 3(1–6)
Radio Writing, Ind. Jour. 162..... 2(2–0)
Rural Press, Ind Jour. 181..... 2(2–0)
Pub. Information Methods, Ind. Jour. 183..... 2(2–0

Occupational Therapy

Design in the Crafts II, Art 108..... 2(0–6)
Weaving I, Art 106..... 2(0–6)
Weaving II, Art 107..... 2(0–6)
Problem in Design, Art 217..... 2(0–6)
Art of Southwest Indians, Art 242... 2(2–0)
Human Anatomy, Zoöl. 123..... 5(3–6)
Kinesiology W., Phys. Educ. 184.... 2(2–0)
Therapeutics and Massage, Phys. Educ. 175..... 3(2–3)
Human Physiology, Zoöl. 221..... 4(3–3)
General Psychology, Educ. 184..... 3(3–0)
Abnormal Psychology, Educ. 254.... 3(3–0)
Mental Tests, Educ. 260..... 3(3–0)
Pottery Design, Art 109..... 2(0–6)
The Arts of Mexico, Art 244..... 2(2–0)

Research in Nutrition

Chemistry I, Chem. 101	5(3–6)
Chemistry II, Chem. 103, 104	5(3–6)
Organic Chemistry I, Chem. 225	5(3–6)
Organic Chemistry II, Chem. 226	4(2–6)
Biochemistry, Chem. 240	5(3–6)
Biochemical Analysis, Chem. 248	2(0–6)
Quant. Analysis A, Chem. 211	3(1–6)
Quant. Analysis B, Chem. 212	3(1–6)
General Zoölogy, Zoöl. 105	5(3–6)
Human Physiology, Zoöl. 221	4(3–3)
Seminar in Nutrition, Foods and Nutr. 254	2(2–0)
College Algebra, Math. 104	3(3–0)
Plane Trig., Math. 101	3(3–0)
Plane Analytical Geometry, Math. 110	4(4–0)
Calculus I, Math. 114	4(4–0)
Calculus II, Math. 115	4(4–0)
Elements of Statistics, Math. 126	3(3–0)
General Microbiology, Bact. 101	3(1–6)
Bact. of Human Diseases, Bact. 206	5(3–6)
Immunology, Bact. 229	5(3–6)
Bacteriological Technic, Bact. 225	3(0–9)
General Physics I, Phys. 102	4(3–3)
General Physics II, Phys. 103	4(3–3)

Social Welfare Work

Child Guidance I, Child Welf. 201	3(2–3)
Sociology, Econ. 151	3(3–0)
Com. Organization, Econ. 267	3(3–0)
Fieldwork, in Nutrition, Foods and Nutr. 215	3(2–3)
Econ. Problems of the Family Hshld. Econ. 265	2(2–0)
Consumer Buying, Hshld. Econ. 272,	3(3–0)
Parent Guidance, Child Welf. 232	2 to 3
Prevent. Med. and Pub. Health, Stud. Health 101	2(2–0)
Survey of American History II, Hist. 128	3(3–0)
Psychol. of Childhood and Adolescence, Educ. 250	3(3–0)
Child Guidance II, Child Welf. 206,	3(3–0)
Labor Economics, Econ. 234	3(3–0)
Social Pathology, Econ. 258	3(3–0)
American Diplomatic History, Hist. 228	2(2–0)
Problems in Child Welfare and Euthenics, Child Welf. 221	1 to 5
Soc. Psychology, Educ. 270	3(3–0)
Mental Tests, Educ. 260	3(3–0)
Family Relationships, Child Welf. 240	2(2–0)

Textiles Technicians' Option

College Algebra, Math. 104	3(3–0)
Plane Trigonometry, Math. 101	3(3–0)
Plane Analytical Geometry, Math. 110	4(4–0)
Calculus I, Math. 114	4(4–0)
Calculus II, Math. 115	4(4–0)
General Physics I, Phys. 102	4(3–3)
General Physics II, Phys. 103	4(3–3)
Physical Chemistry I, Chem. 260	5(3–6)
Qualitative Organic Analysis, Chem. 228	3(1–6)
Bacteriological Problems, Bact. 270	1–4 hrs.
Problems in Clothing and Textiles, Clo. and Text. 215	1–3 hrs.
Clothing Economics, Clo. and Text. 201	3(3–0)
Adv. Textiles, Clo. and Text. 205	3(1–6)
Experimental Textiles, Clo. and Text. 312	2–5 hrs.
Consumer Buying, Hshld. Econ. 272,	3(3–0)
Marketing, Econ. and Soc. 246	3(3–0)
History of Economic Thought, Econ. and Soc. 310	3(3–0)
Statistical Methods I, Math. 261	3(3–0)

Teaching Home Economics

See "Certificate for Teaching Home Economics."

Art

Professor Barfoot
Associate Professor Everhardy
Associate Professor Harris
Associate Professor Morris
Assistant Professor Darst
Assistant Professor Kedzie
Assistant Professor Holland
Instructor Evans
Instructor ————

The Curriculum in Art is designed to provide a background for homemaking or other professional work. Depending upon their interests, the undergraduate students may specialize in design, interior decoration, costume design, or teaching of art. Major work leading to the degree of Master of Science is offered in costume design, and interior decoration, and related phases of the department's work.

FOR UNDERGRADUATE CREDIT

101A. Elementary Design I. 2 semester hours. Each semester and summer. An introduction to the arts and application of their principles to daily living. Charge, $1; deposit, 25c. Staff.

101B. Elementary Design II. 2 semester hours. Each semester and summer. A continuation of Art 101A, with special emphasis on color and design. Prerequisite: Art 101A. Charge, $1; deposit, 25c. Staff.

102. Design in the Crafts I. 2 semester hours. Each semester or summer. An application of design principles to various technical processes, as bookbinding, block printing, carving, decorative stitchery, leatherwork, metalwork, basketry, puppetry, batik, and tie and dye. Prerequisite: Art 101B or permission of instructor. Charge, $3; deposit, 25c. Holland, Barfoot.

103. Intermediate Design. 2 semester hours. First semester. A continuation of Art 101B, with special emphasis on color possibilities and different design media. Prerequisite: Art 101B. Charge, $1; deposit, 25c. Staff.

104. Elementary School Art. 2 semester hours. Summer school. A course in color and form with methods and materials for teaching art at different grade levels in the elementary schools. This course is not to be substituted for Elementary Design I. Charge, $1; deposit, 25c. Staff.

105. Advanced Design. 2 semester hours. Second semester or summer. A continuation of Art 103, with emphasis on art structure. Prerequisite: Art 103; charge, $1; deposit, 25c. Barfoot, Everhardy, Morris.

106. Weaving I. 2 semester hours. Each semester or summer. A study of the principles of design, color, and texture applied to textile construction. Prerequisite: Art 101B. Charge, $3; deposit, 25c. Kedzie.

107. Weaving II. 2 semester hours. Each semester or summer. Continuation of Art 106, with emphasis on original woven designs. Prerequisite: Art 106. Charge, $3; deposit, 25c. Kedzie.

108. Design in the Crafts II. 2 semester hours. Second semester or summer. Continuation of Art 102, with projects selected from groups listed in Art 102 to make up one semester's work. Prerequisite: Art 102. Charge, $3; deposit, 25c. Holland, Barfoot.

109. Pottery Design. 2 semester hours. Each semester or summer. Art principles applied to specific processes in the production of pottery. Prerequisite: Art 101B. Charge, $3; deposit, 25c. Holland.

113. Interior Decoration I. 2 semester hours. Each semester and summer. The decoration and furnishing of the modern dwelling. Prerequisites: Art 101B and Hsld. Econ. 107. Charge, $1; deposit, 25c. Staff.

114. Home Furnishing. 2 semester hours. Each semester or summer.
Practical work in restyling furnishings and designing interior accessories. Prerequisite: Art. 113. Fee to be arranged. Staff.

115. Interior Decoration II. 2 semester hours. First semester.
A study of house types, period furniture, and fabrics. Prerequisite: Art. 113. Charge, $1.50. Deposit, 25¢. Staff.

117. Interior Decoration III. 2 semester hours. Second semester.
A continuation of Art 115, with emphasis on style in textural and structural combinations. Prerequisite: Art 115. Charge, $1.50; deposit, 25¢. Harris, Morris, Darst.

120. Drawing I. 2 semester hours. Each semester or summer.
Representative sketching, decorative illustrating, and creative designing in which a variety of media and technique is employed. Prerequisite: Art 101B. Charge, $3; deposit, 25¢. Staff.

121. Drawing II. 2 semester hours. First or second semester.
A continuation of Art 120. Prerequisite: Art 120. Charge, $2; deposit, 25¢. Staff.

127. Lettering. 2 semester hours. First semester.
Creative design in the field of lettering in relation to historic and modern forms. Prerequisite or concurrent: Art. 101B. Charge, $1; deposit, 25¢. Staff.

130. Costume Design I. 2 semester hours. Each semester and summer.
Line, form, color, texture in costume design and selection as related to the requirements of the individual. This course is a design basis for garment selection and construction. Prerequisite: Art 101A. Charge, $1; deposit, 25¢. Staff.

134. Costume Design II. 2 semester hours. First semester.
A continuation of Art 130, with problems in creative designing for the fashion figure. Prerequisite: Art 130. Charge, $2; deposit, 25¢. Staff.

138. Costume Design III. 2 semester hours. Second semester.
A continuation of Art 134, and evaluation of historic styles with relation to modern dress design. Prerequisite: Art 130. Charge, $3; deposit, 25¢. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Principles of Art I. 3 semester hours. First semester or summer.
The culture of various peoples and their homes as shown by their use of color, line, and form in architecture, sculpture, and painting. Prerequisite: Art 101B. Barfoot, Harris, Morris.

202. Principles of Art II. 3 semester hours. Second semester or summer.
A continuation of Art 201, dealing particularly with home crafts and minor arts. Prerequisite: Art 201. Barfoot, Harris, Morris.

212. Costume Illustration. 2 semester hours. Second semester or summer.
Costume figures for fashion illustration rendered in various media suitable for reproduction. Prerequisite: Art 101B and 130. Charge, $2; deposit, 25¢. Staff.

217. Problems in Design. Credit to be arranged. Each semester or summer.
Problems in design planned to meet the particular needs of the student. Prerequisite: Eight hours in art or permission of instructor. Charge, $1; deposit, 25¢. Staff.

230. Problems in Teaching Art. Credit to be arranged. Each semester or summer.
For the high-school teacher who is correlating art with home economics, particularly for the teacher of art connected with the vocational home eco-

nomics program. Lectures and class discussions of methods, consideration of suitable laboratory equipment, use of illustrative material, and preparation of course of study. Prerequisite: Art 101B and Educ. 132 or equivalent. Charge, $1; deposit, 25¢. Barfoot, Everhardy.

232. Problems in Interior Decoration. Credit to be arranged. Each semester or summer.

Problems planned with the student to meet her particular needs. Prerequisite: Art 117 or permission of instructor. Charge, $1; deposit, 25 cents. Harris, Morris, Darst.

233. Historic Textile Design. 2 semester hours. Each semester or summer.

Design employed in fabrics in each of the great art periods. Prerequisite: Art 101B and Clo. and Text. 116. Staff.

235. Problems in Costume Design. Credit to be arranged. First semester or summer.

Problems planned with the student to meet her particular needs. Prerequisite: Eight hours in art or permission of instructor. Charge, $1; deposit, $25¢. Staff.

242. Art of the Southwest Indians. 2 semester hours. Each semester or summer.

Discussions of the origin and development of the decorative arts and ceremonials of the Southwest area from prehistoric times to the present. Prerequisite: Art 101A. Deposit, 25c. Everhardy.

244. The Arts of Mexico. 2 semester hours. Each semester or summer.

A survey of the arts of pre-Spanish, colonial, and modern Mexico, their origins and developments. Prerequisite: Art 101A. Deposit, 25¢. Harris.

246. Art of Primitive People. 2 semester hours. Second semester.

A study of the local art styles of various groups of primitive people, stressing their skills in designing for everyday living. Prerequisite: Art 101A. Deposit, 25 cents. Everhardy.

FOR GRADUATE CREDIT

302. Advanced Costume Design. Credit to be arranged. Each semester and summer.

Individual research problems which may form the basis for the master's thesis. Prerequisite: Consult instructors. Charge to be arranged with instructor. Staff.

304. Advanced Interior Decoration. Credit to be arranged. Each semester and summer.

Individual research problems which may form the basis for the master's thesis. Prerequisite: Consult instructors. Charge to be arranged with instructor. Staff.

306. Problems in Advanced Design. Credit to be arranged. Each semester and summer.

Individual research problems which deal with the various phases of design may be chosen by the student with the aid of the instructor. Prerequisite: Consult instructors. Charge to be arranged with instructor. Staff.

Child Welfare and Euthenics

Professor Roy
Associate Professor Kell
Associate Professor Williams
Assistant Professor Raffington
Assistant Professor Aldous
Instructor Hilbert
Assistant Jagger
Graduate Assistant Briggs
Graduate Assistant Klema

In the Department of Child Welfare and Euthenics, instruction is given in physical and mental health, child behavior and guidance, and family relationships. The instruction in child behavior and guidance is based on work with children 2 to 5 years of age in the nursery school.

FOR UNDERGRADUATE CREDIT

101. Personal Health. 2 semester hours. Each semester and summer.
Orientation to college living through study of social, mental and physical health. Charge, $1. Staff.

105. History of Nursing. 2 semester hours. Each semester and summer.
The origin of nursing and its development from ancient to modern times. Charge, $1. Williams.

110. Introduction to Nursing Arts. 3 semester hours. Each semester and summer.
Techniques and skills employed in nursing with consideration of the principles underlying these procedures. One hour of recitation and six of laboratory a week. Charge, $1. Williams.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Child Guidance I. 3 semester hours. Each semester and summer.
The needs of young children, the principles involved in understanding and guiding young children, and the application of these principles in daily life. Two hours of recitation and three of laboratory a week. Prerequisite: Junior standing or consent of head of department. Charge, $2. Additional charge for luncheon. Staff.

206. Child Guidance II. 3 semester hours. Second semester and summer.
Guidance problems of elementary school years through adolescence. Field work is offered whenever practical. Prerequisite: Child Welf. 201. Charge, $1. Aldous.

211. Family Health. 3 semester hours. Each semester and summer.
Factors conducive to family and community health; physical development and care of the child; simple first-aid and home nursing procedures. Prerequisite: Junior standing. Charge, $1. Williams.

216. The Family. 2 semester hours. Each semester and summer.
An approach to an understanding of the American family of today, made through study of the dynamic relationship of family members. Prerequisite: Junior standing. Charge, $1. Roy, Kell.

221. Problems in Child Welfare and Euthenics. Credit to be arranged. Each semester and summer.
Prerequisite: Consult head of department. Charge, $1. Staff.

226. Seminar in Child Welfare and Euthenics. 1 or 2 semester hours. Each semester and summer.
Consideration of current research in the field. Prerequisite: Child Welf. 201. Charge, $1. Roy, Kell.

232. Parent Guidance. 2 or 3 semester hours. First semester.
Survey and organization of principles, methods and materials useful to advanced students. Fieldwork is offered whenever practicable. Prerequisite: Child Wel. 206 and 216. Charge, $1. Kell.

240. Family Relationships. 2 semester hours. Second semester.
Advanced study of current research relating to interaction of family members. Prerequisite: Child Welf. 216. Charge, $1. Roy.

241. Creative Arts for Young Children. 2 semester hours. Each semester and summer.
Art, music, books, and play materials for preschool children. Two hours of recitation a week and individual problems. Prerequisite: Child Welf. 201 and junior standing. Charge, $1. Hilbert.

242. Nursery School Management. 2 semester hours. Each semester and summer.
Development of the nursery school movement and its relation to present social conditions. Prerequisite: Child Welf. 201 and junior standing. Charge, $1. Kell.

FOR GRADUATE CREDIT

301. Research in Child Welfare and Euthenics. Credit to be arranged. Each semester and summer.
Individual research problems which may form the basis for the master's thesis. Consult head of department. Charge to be arranged. Roy, Kell, Williams.

Clothing and Textiles

Professor Latzke
Associate Professor Cowles
Associate Professor Hess
Associate Professor Cormany
Instructor Howe
Instructor Gilmore
Instructor Lienkaemper

The Department of Clothing and Textiles offers courses designed to furnish essential knowledge concerning consumer problems in clothing and textiles. Instruction is provided for students who wish to prepare for vocational, professional, and business positions, such as teachers, extension workers, research workers, textile chemists, clothing consultants, and purchasing agents for institutions and department stores.

FOR UNDERGRADUATE CREDIT

113. Fundamentals of Clothing. 2 semester hours. Each semester and summer.
Selection of clothing with self-analysis as a basis; wardrobe planning and buying procedures. A study of commercial patterns and principles of garment construction. Six hours of recitation and laboratory a week. Charge, $1; deposit, 25c. Staff.

114. Applied Dress Design. 3 semester hours. Each semester and summer.
Application of design principles to dress. Development of foundation pattern; flat pattern designing; construction of a dress. Nine hours of recitation and laboratory a week. Prerequisite: Clo. and Text. 113. Charge, $3; deposit, 25¢. Staff.

117. Textiles. 2 semester hours. Each semester and summer.
Fundamentals of textiles as related to the problems of the consumer. One hour of recitation and three of laboratory a week. Prerequisite: Chem. 122 or Comprehensive 102; Phys. 109 recommended. Charge, $2.50; deposit, 25¢. Hess, Cormany.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Clothing Economics. 3 semester hours. First or second semester and summer.
The organization of textile industries and markets; consumer problems

in relation to market conditions; standardization of clothing and textiles. Prerequisite: Comprehensive 122 or equivalent. Latzke.

205. Advanced Textiles. 3 semester hours. Each semester and summer.
Physical, chemical and optical testing of textiles; emphasis placed on research techniques. One hour of recitation and six of laboratory a week. Prerequisite: Clo. and Text. 117. Charge, $3, deposit, 25c. Hess, Cormany.

211. Advanced Dress Design. 3 semester hours. Each semester and summer.
Social significance of fashion; application of design to dress. Designs draped in cotton and then completed in suitable material. Nine hours recitation and laboratory a week. Prerequisite: Clo. and Text. 114. Charge, $4.50; deposit, 25c. Staff.

214. Problems in Clothing Design. 3 semester hours. Each semester and summer.
Design as related to the coat or suit; techniques of tailoring; construction of coat or suit. Nine hours recitation and laboratory a week. Prerequisite: Completion of Clo. and Text. 114 with at least a grade of "C"; Clo. and Text. 211 recommended. Charge, $2; deposit, 25c. Latzke, Cormany, Howe.

215. Problems in Clothing and Textiles. 1 to 5 semester hours. Each semester and summer.
Special problems in clothing or textiles. Consult instructor for time of meeting. Prerequisite: Senior or graduate standing. Charge to be arranged. Staff.

225. History of Costume. 2 semester hours. Second semester and summer.
Aspects of the culture of various countries and periods of history as reflected in costume. Prerequisite: Hist. 106 or equivalent. Lienkaemper.

FOR GRADUATE CREDIT

301. Research in Clothing and Textiles. 1 to 6 semester hours. Each semester and summer.
Research in clothing or in textiles which may form the basis for the master's thesis. Consult instructor for time of meeting. Prerequisite: Graduate standing. Charge to be arranged. Staff.

304. Clothing and Textiles Seminar. 1 semester hour. Second semester and summer.
Discussion of current developments in the field. Prerequisite: Graduate standing. Staff.

312. Experimental Textiles. 2 to 5 semester hours. Each semester and summer.
Prerequisite: Clo. and Text. 205. Charge to be arranged. Hess, Cormany.

Food Economics and Nutrition

Professor Pittman
Professor Vail
Professor Ascham
Professor Kramer
Associate Professor McMillan
Associate Professor Browning
Associate Professor Westerman
Assistant Professor Meiller
Assistant Professor Marlatt
Instructor Mullen
Instructor Stewart
Instructor Miller
Assistant Tinklin
Technician Wilson

The Department of Food Economics and Nutrition provides specialized instruction for homemakers, teachers of foods, dietitians, and for commercial, extension, and research workers. It also gives courses designed for those whose major interest is outside the field of home economics.

FOR UNDERGRADUATE CREDIT

102. Foods I. 5 semester hours. Each semester and summer.
Elementary nutrition, principles of food preparation and food economics. Experience in food preparation and meal service. Three hours of recitation and six of laboratory a week. Charge, $6; deposit, $1. Staff.

107. Foods II. 3 semester hours. Each semester.
Chemical and physical properties of food related to preparation and preservation. One hour of recitation and six of laboratory a week. Prerequisite: Chem. 122 or Comprehensive 102 and Foods and Nutr. 102. Charge, $5; deposit, $1. Staff.

121. Applied Nutrition. 2 semester hours. Each semester and summer.
Practical nutrition including food requirements, food selection and food habits. For men and women students not majoring in home economics. Staff.

176. Meats H. E. 1 semester hour. Each semester.
See Department of Animal Husbandry, School of Agriculture, An. Husb. 176.

FOR GRADUATE AND UNDERGRADUATE CREDIT

***203. Dietetics.** 3 semester hours. Each semester and summer.
Food requirements during normal infancy, childhood, adolescence, adult life and old age. Adequate diets at different economic levels. Prerequisite: Foods and Nutr. 112. Staff.

***204. Dietetics Laboratory.** 1 semester hour. Each semester and summer.
Energy, protein, mineral and vitamin computations. Normal diets for infants, children, and adults. Three hours of laboratory a week. Concurrent: Foods and Nutr. 203. Charge, $5; deposit, $1. Staff.

205. Dietetics for Abnormal Conditions. 2 semester hours. Each semester and summer.
Food requirements in pathological conditions. Special diets, preparation of trays, computation of dietaries, consideration of costs. One hour of recitation and three of laboratory a week. Prerequisite: Foods and Nutr. 206. Charge, $1; deposit, $1. Meiller, Kramer.

206. Nutrition and Dietetics. 5 semester hours. Each semester and summer.
Chemistry of foods and nutrition, emphasizing food nutrients, digestion, and metabolism. Food requirements during normal infancy, childhood, adolescence, adult life, and old age. Adequate diets at different economic levels. Prerequisite: Foods and Nutr. 107; Zoöl. 219 or 221† or Comprehensive 112. Staff.

207. Nutrition and Dietetics Laboratory. 1 semester hour. Each semester and summer.
Energy, protein, mineral, and vitamin computations. Normal diets for infants, children, and adults. Three hours of laboratory a week. Concurrent: Foods and Nutr. 206. Charge, $5; deposit, $1. Staff.

210. Nutrition of Development. 2 semester hours. Second semester and summer.
Nutrition in pregnancy and lactation. Food requirements of fetus, infant, preschool and school child through adolescence. Prerequisite: Foods and Nutr. 206. Pittman.

215. Fieldwork in Nutrition. 3 semester hours. Each semester.
Survey of field of child nutrition, field work with school children, special work with individual children. Two hours of recitation and three of lab-

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* To be dropped Septemeber 1, 1946.

† Students from other Schools may substitute an equivalent number of hours in other science for these prerequisites.

oratory a week. Prerequisite: Foods and Nutr. 206. Charge to be arranged with instructor. Browning, Kramer.

245. Problems in Foods. Credit to be arranged. Each semester and summer. Problems dealing with preparation and preservation of food. Three hours of laboratory a week for each hour of credit. Prerequisites: Consult instructor. Charge to be arranged with instructor; deposit, $1. Vail, McMillan.

248. Problems in Food Economics and Nutrition. Credit to be arranged. Each semester and summer.

Problems dealing with the nutritive value of foods, animal experimentation, dietary studies, practice in methods commonly used in simple experiments in nutrition. Three hours of laboratory a week for each hour of credit. Prerequisite: Senior or graduate standing. Charge to be arranged with instructor. Staff.

253. Seminar in Foods. 2 semester hours. First semester and summer.

Individual reports and discussion of topics in fields of foods, food economics, and food research. Prerequisite or concurrent: Foods and Nutr. 255. Vail, McMillan.

254. Seminar in Nutrition. 2 semester hours. Each semester and summer.

Individual reports and discussion of topics in field of nutrition. Prerequisite: Foods and Nutr. 206. Staff.

255. Experimental Cookery. 2 semester hours. Each semester and summer. Food preparation from the experimental standpoint. Six hours of laboratory a week. Prerequisite or concurrent: Foods and Nutr. 206. Charge to be arranged with instructor; deposit, $1. Vail, McMillan.

256. Fundamentals of Demonstrations. 2 semester hours. Second semester. Objectives and techniques of demonstrations in foods and household equipment, with emphasis upon their use in the business field. In coöperation with the Department of Household Economics. Six hours of laboratory a week. Prerequisites: Foods and Nutr. 255; Hshld. Econ. 203 or Inst. Mgmt. 105 and Educ. 132. Charge to be arranged with instructor; deposit, $1. Staff.

FOR GRADUATE CREDIT

305. Research in Food Economics and Nutrition. Credit to be arranged. Each semester and summer.

Individual research problems which may be the basis for a master's thesis. Three hours a week for each hour of credit. Prerequisite: Consult instructor. Charge to be arranged with instructor. Staff.

Courses in Home Economics Education*

Professor Rust
Associate Professor Baxter
Assistant Professor ————
Instructor Lofink

FOR UNDERGRADUATE CREDIT

132. Methods of Teaching Home Economics. 3 semester hours. Each semester and summer. Rust, Baxter.

See Department of Education, School of Arts and Sciences.

133. Methods of Teaching for Dietetic Students. 3 semester hours. Each semester.

Prerequisites: Inst. Mgmt. 101 and Foods and Nutr. 206 and 207. Rust.

See Department of Education, School of Arts and Sciences.

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* The ten courses named here are given by the Department of Education for the School of Home Economics. The staff is appointed coöperatively by that department and the School of Home Economics.

160. Teaching Participation in Home Economics. 3 semester hours. Each semester and summer.

By appointment. Rust, Baxter. See Department of Education, School of Arts and Sciences.

FOR GRADUATE AND UNDERGRADUATE CREDIT

231. Supervision of Home Projects. 1 or 2 semester hours. Each semester and summer.

Prerequisite: Educ. 132 and junior standing. Lofink. See Department of Education, School of Arts and Sciences.

232. Teaching Subjects Related to Home Economics. 1 to 3 semester hours. Each semester and summer.

Prerequisite: Educ. 184 and 132. Rust. See Department of Education, School of Arts and Sciences.

234. Methods in Adult Homemaking Classes. 1 to 3 semester hours. Summer.

Prerequisite: Educ. 132 and 184 or equivalent. Rust. See Department of Education, School of Arts and Sciences.

FOR GRADUATE CREDIT

313. Research in Organization and Presentation of Home Economics. Credit to be arranged. Each semester and summer.

Prerequisite: Graduate standing and confirmation of School of Home Economics. Justin, Rust. See Department of Education, School of Arts and Sciences.

314. Organization and Presentation of Home Economics. Credit to be arranged. Each semester and summer.

Prerequisite: Senior or graduate standing. Justin, Rust. See Department of Education, School of Arts and Sciences.

315. Supervision in Home Economics. 2 semester hours. Each semester and summer.

Prerequisite: Educ. 160 and experience in teaching home economics. Rust. See Department of Education, School of Arts and Sciences.

318. Seminar in Home Economics Education. 2 or 3 semester hours. Second semester and summer.

Prerequisite: Educ. 160 and experience in teaching home economics. Rust and visiting instructors. See Department of Education, School of Arts and Sciences.

General Home Economics

Dean JUSTIN
Assistant Dean MCMILLAN
Assistant Professor RAFFINGTON
Assistant Professor ————

FOR UNDERGRADUATE CREDIT

131. Home Economics Freshman Lectures. R (meetings by appointment).

Freshmen meet weekly during the fall semester and monthly during the spring semester for orientation and guidance. Charge, 75 cents. Staff, student counselors.

133. Home Economics Lectures. R (meetings by appointment).

Upper-class students attend Interest Groups and special meetings during the year. Programs are presented by members of the faculty and speakers from outside. These groups are sponsored by the Home Economics Club. Charge, 75 cents. Staff.

134. Home Economics Senior Lectures. R (meetings by appointment).
Seniors meet weekly during the spring semester. Juniors in the nursing curriculum take Senior Lectures. The opportunities and responsibilities of the home economist are presented, and means for professional growth and personal advancement of women are stressed. Charge, 75 cents. Justin and staff.

135. Guidance of Freshmen. 1 semester hour. First semester.
Instruction in counseling techniques employed in freshman orientation in the School of Home Economics. Prerequisite: Junior or senior standing and special permission from the dean. Application for enrollment in this class must be made in the preceding spring semester. Dean's staff, School of Home Economics, and others.

140. Home Projects. R (meetings by appointment).
Each student must complete a minimum of two home projects at least one semester before graduation, except that students in the Curriculum in Home Economics and Nursing and those transferring from other colleges and schools with junior or senior standing need to complete only one. Supervision of Home Projects, Educ. 231, may be substituted for one home project, if desired.

145. Home Economics A. 4 semester hours. Each semester and summer.
Consideration of problems of personal adjustment, personal finance, social usages, personal health and nutrition, and basic principles of food preparation and meal planning. Experience in food preparation, meal planning. Two hours of recitation and six hours of laboratory a week. No prerequisite. (Either course, Home Economics A or B, may be taken first.) For nonmajors. Staff.

146. Home Economics B. 4 semester hours. Each semester and summer.
Consideration of the fundamentals of color, texture, line and form, and their application to daily living, including selection of clothes and room furnishings with due regard for budgetary limits. Experience in selection of color, line, and form in fabrics and other articles, and in garment construction. Two hours of recitation and six hours of laboratory a week. No prerequisite. (See course 145.) For nonmajors. Staff.

Household Economics

Professor ————
Associate Professor GUNSELMAN
Associate Professor AGAN
Assistant Professor MCKINNEY
Instructor ————
Instructor ————

Through the courses in the Department of Household Economics an opportunity is offered for studying the effect of social and economic forces on the home and its management. The phases presented for study include housing, home management, equipment, family finance, consumption, and related economic problems. Graduate students preparing to become advisers in home management houses, specialists and consultants in home management, teachers, home makers, and research workers in these fields find suitable courses in this department.

FOR UNDERGRADUATE CREDIT

107. The House. 3 semester hours. Each semester and summer.
A consideration of dwellings, their environments, plans, funishings, and equipment, which will promote effective utilization of family resources. Two hours of recitation and three hours of laboratory a week. Prerequisite: Foods and Nutr. 102; Phys. 109 recommended. Charge, $1. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Household Equipment I. 2 semester hours. First semester and summer.
Care, construction, operation, and use of certain equipment used in the home. Six hours of laboratory a week. Prerequisite: Phys. 109; Hshld. Econ. 107. Charge, $2.50. Agan.

205. Household Equipment II. 2 semester hours. Second semester.
Six hours of laboratory a week. Prerequisite: Hshld. Econ. 203. Charge, $2.50. Agan.

240. Home Management. 3 semester hours. Each semester and summer.
The application of principles taught in basic home economic courses and their relation to satisfying family life.

Laboratory.—Opportunity is provided for experience in group living and management in home management houses operating on two different income levels. The period of residence is one-half of a semester. One hour of recitation and six hours of laboratory a week. Prerequisite: Senior standing; Hshld. Econ. 107. Staff.

243. Problems in Household Economics. Credit to be arranged. Each semester and summer.
Special problems for individual investigation in standards of living and family expenditures; housing and household equipment; use of family resources. Prerequisite: Consult instructor. Staff.

256. Fundamentals of Demonstrations. 2 semester hours. Second semester.
See Department of Food Economics and Nutrition. Prerequisite: Foods and Nutr. 255; Hshld. Econ. 203; Educ. 132. Agan, McMillan.

263. Family Finance. 2 semester hours. Each semester and summer.
Financial problems involved in the effective management of the family's resources. Staff.

265. Economic Problems of the Family. 2 semester hours. Second semester and summer.
Study of income and factors determining cost of living. Insurance, annuities, investments; credit and borrowing. Prerequisite: Comprehensive 122; Hshld. Econ. 263 recommended. Staff.

272. Consumer Buying. 3 semester hours. Each semester and summer.
Problems of the consumer in the present market, aids toward intelligent buying of commodities, and the types of protection, including legislation. Field trip. Prerequisite: Comprehensive 122 and junior standing. Gunselman and others from related subject-matter fields.

280. Seminar in Home Management. 1 to 3 semester hours. Each semester and summer.
A review of literature and trends in management; the contribution made by home management to the family and community. Prerequisite: Senior or graduate standing. Charge, $1. Staff.

FOR GRADUATE CREDIT

305. Economics of Consumption. 2 semester hours. Second semester and summer.
The consumer and his function; the economic significance of choice and of the planes of consumption. Prerequisite: Comprehensive 122; Hshld. Econ. 263 and 265. Staff.

310. Research in Household Economics. Credit to be arranged. Each semester and summer.
Individual research problems which may form the basis for the Master's thesis. Prerequisite: Consult instructors. Staff.

Institutional Management

Professor WEST
Associate Professor SMULL
Assistant Professor MARSH
Assistant Professor MILLER
Instructor DUNNIGAN

Courses in the Department of Institutional Management provide preparation for cafeteria, tearoom, and lunchroom managers, dietitians, and directors of residence halls.

FOR UNDERGRADUATE CREDIT

101. Institutional Cookery. 4 semester hours. Each semester and summer.
Food problems of institutions, including preparation and serving of foods in large quantities, menu planning, and food costs. Laboratory carried on in College Cafeteria where food is prepared and served in large quantities. One hour of recitation and nine hours of laboratory a week. Prerequisite: Foods and Nutr. 107. Charge, $2.50. Smull.

103. Institutional Food Buying. 2 semester hours. Each semester and summer.
Producing areas; distribution of food products; methods of purchasing food in large quantities. Prerequisite or concurrent: Inst. Mgmt. 101. West.

105. Institutional Furnishings and Equipment. 2 semester hours. Each semester and summer.
Selection, arrangement, installation, and care of the different types of equipment for the house and food departments of institutions. Prerequisite or concurrent: Inst. Mgmt. 101. Miller.

FOR GRADUATE AND UNDERGRADUATE CREDIT

201. Organization and Administration of Institutions. 2 semester hours. Each semester.
Problems involved in the organization and management of food service units. Women's residence hall to be used as laboratory. Prerequisite (or concurrent for graduate students): Inst. Mgmt. 101. West, Marsh.

202. Organization and Administration of Institutions Laboratory. 2 semester hours. Each semester.
Women's residence hall to be used as laboratory. Six hours of laboratory a week. Prerequisite (or concurrent for graduate students): Inst. Mgmt. 101. West, Marsh.

210. Problems in Institutional Management. Credit to be arranged. Each semester and summer.
Individual investigation of problems in institutional management. Conferences and reports at appointed hours. Prerequisite or concurrent: Inst. Mgmt. 201 and 202. Consult instructor. Staff.

221. School Food Service. 3 semester hours. Each semester and summer.
Organization, administration, equipment, food buying, food costs, and menu planning for special meals and school lunchroom service. Two hours of recitation and three hours of laboratory a week. Prerequisite: Foods and Nutr. 107. Charge, $2. Dunnigan.

225. Tearoom Management. 3 semester hours. Each semester and summer.
Practical experience in planning, preparing, and serving food for the public. The College tearoom serves as a laboratory for this course. Nine hours of laboratory a week. Prerequisite or concurrent: Inst. Mgmt. 201 and 202. Charge, $2.50. Miller.

235. Institutional Housekeeping. 2 semester hours. Second semester.
Problems involved in the management and care of the house departments

of various types of institutions. One hour of recitation and three of laboratory a week. Prerequisite or concurrent: Inst. Mgmt. 201 and 202. Charge, $1. Marsh.

FOR GRADUATE CREDIT

301. Research in Institutional Management. Credit to be arranged. Each semester and summer.
Prerequisite: Consult instructor. Staff.

Bureau of Research in Home Economics

The Bureau of Research in Home Economics conducts investigations in the scientific, economic, and social problems of the home. The purpose of this research is to discover new facts and new methods in the application of scientific knowledge bearing upon the welfare of the members of the family and the conditions under which they live.

The fields of research included in the bureau are child welfare, clothing and textiles, foods, food economics, household administration, institutional management, human nutrition, dietetics, and public health.

The laboratories of the School of Home Economics include equipment suitable for work on certain of the problems. Opportunities for surveys and investigations of conditions in the state are found through the coöperation of various educational and social agencies.

The results of all investigations are published from time to time and are available on request to all citizens of the state.

The personnel of the bureau staff includes members of the teaching faculty in home economics. Several of the departments in other schools of the College advise or collaborate with officers of the bureau on problems of related interest.

Among the investigations in progress are the following:

*Effect upon the animal body of varying the amount of vitamin in the diet.
*Vitamin content of foods relating to human nutrition.
Factors affecting the quality of cakes.
Cooking and baking quality of dried egg products.
*Composition of cooked meats.
Dietary studies—group, individual, and balance studies.
*Nutritional status of college women as related to dietary habits.
*A study of the factors affecting service qualities of certain textile fabrics.
*A comparison of the service qualities of certain synthetic fabrics and mixed synthetic fabrics.
*The effect of fininshes on the service qualities of the synthetic fabrics and fabrics of the natural fibers.
*Coefficient of absorption of textile materials.
*Service qualities of household fabrics.
Studies on group relationships.
Parents' attitudes and practices in relation to their children.
Case studies of children and adults.
Principles of guidance based on situational analysis.
Studies of factors affecting the expenditures for family living.

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* The investigations starred are being supported in part by funds from the Agricultural Experiment Station.

The School of Veterinary Medicine

RALPH R. DYKSTRA, *Dean*

VETERINARY ENROLLMENT LIMITED

By authority of the State Board of Regents, enrollment in the Curriculum in Veterinary Medicine is limited to a total of 200 students. Persons wishing to enter this curriculum should apply several weeks in advance of the opening of the college year. Admission to each of the four years is based on the applicant's scholarship record and other evidence of his fitness. When all other factors are equal, first preference is given to applicants who are residents of Kansas, and second preference to applicants who are residents of those states having no standard college of veterinary medicine. In general, no requests for admission will be approved after August 15. Application blanks may be obtained from the Dean of the School of Veterinary Medicine.

The College is authorized to require each nonresident of Kansas filing an application for selection as a student in the School of Veterinary Medicine to deposit the amount of the nonresident matriculation fee, which at present is $20. If the application for selection is approved by the Committee on the Selection of Veterinary Students, the deposit is to be applied when the student enrolls as payment of the usual matriculation fee required of nonresidents, or in the case of those nonresidents who have been previously enrolled in the College—though not as students of Veterinary Medicine—it is to be applied on the incidental fee. If the applicant is not approved by the Committee on the Selection of Veterinary Students, the deposit is to be returned to him in full. If an approved applicant does not present himself for registration within ten days after the opening of the next semester following the date of the receipt of the application, 50 percent of the deposit will be forfeited to the College.

Applicants must offer: (1) The high-school units required for admission to the preveterinary adaptation of the freshman year of the Curriculum in General Science; (2) thirty-two hours of college work as prescribed in or equivalent to the preveterinary year in the School of Arts and Sciences. This work may be done here or in any approved junior college, college, or university.

CURRICULUM IN VETERINARY MEDICINE

The Curriculum in Veterinary Medicine in Kansas State College was established to give the young men of this state an opportunity to pursue these studies in an agricultural environment, where the facilities offered by other branches of the College would be at their command. Better to fit the veterinarian to deal wisely with the livestock problems which he has to meet, he is required to take the work in livestock feeding, breeding, and judging, in milk inspection, and in zoölogy, in addition to his purely professional work.

Work mut be taken as prescribed, except that certain courses may be selected from the list of extracurricular electives if the student has the prerequisites.

Due to wartime conditions an accelerated curriculum, permitting a student to get the degree D. V. M. in three years, is offered in the School of Veterinary Medicine to those students who wish to select this curriculum and have the necessary qualifications. Students wishing to avail themselves of this offer must consult the Dean of the School of Veterinary Medicine during their freshman year.

Curriculum in Veterinary Medicine

For admission requirements to this curriculum consult the "Preveterinary year" on page 96.

FIRST YEAR

First Semester				Second Semester			
		Course	*Sem. Hrs.*			*Course*	*Sem. Hrs.*
Comp.	121	Man and the Social World I,	4	Comp.	122	Man and the Social World II,	4
P. H.	101	Fm. Poul. Prod	2	Anat.	114	Anatomy II	6
Anat.	113	Anatomy I	6	Path.	106	Histology II	3
Path.	104	Histology I	3	Physiol.	222	Comp. Physiol. I	4
Chem.	243	Physiol. Chem	3	Mil. Sc.	104	Infantry IV	1
Mil. Sc.	103	Infantry III	1	Phys. Ed.	103	Phys. Educ	R
Phys. Ed.	103	Phys. Educ	R				
Total			19	Total			18

SECOND YEAR

First Semester				Second Semester			
Bact.	103	Vet. Microbiology	3	Bact.	112	Path. Bact. and Virology	4
Physiol.	227	Comp. Physiol. II	4	Path.	208	Pathology II	4
Path.	203	Pathology I	5	Physiol.	230	Pharmacodynamics	3
Zoöl.	208	Animal Parasitology	3	Surg.	158	Mat. Medica	4
A. H.	126	El. of Animal Husb	2	A. H.	190	Livestock Feeding	3
A. H.	127	Livestock Judging	1	D. H.	103	Dairy Cattle Judging	1
Total			18	Total			19

THIRD YEAR

First Semester				Second Semester			
Path.	235	Applied Vet. Paras	3	Path.	211	Pathology III	3
Bact.	117	Vet. Immunology	3	Surg.	109	Surgery II	4
Bot.	126	Med. Botany	2	Surg.	130	Obst. and Breed. Dis	5
Surg.	108	Surgery I	4	Surg.	141	Clinics II	2
Surg.	163	Therapeutics	3	Surg.	111	Dis. of Lrg. Animals I	4
Surg.	138	Clinics I	2	Anat.	115	Topographic Anatomy	1
Surg.	110	Diagnosis	2	V. M.	102	Jr.-Sr. Conf	R
V. M.	101	Jr.-Sr. Conf	R				
Total			19	Total			19

FOURTH YEAR

First Semester				Second Semester			
Surg.	112	Surg. Exercises	1	Surg.	181	Inf. Dis. of Lrg. Animals	5
Surg.	113	Dis. of Lrg. Animals II	4	Bact.	217	Poultry Diseases	2
D. H.	119	Dairy Insp. for Vet. Students,	2	Path.	218	Food Hyg. and Pub. Health,	5
Path.	215	Pathology IV	3	Surg.	191	Med. Econ. and Law	2
Surg.	114	Sm. Animal Surgery	2	Surg.	147	Clinics IV	4
Surg.	144	Clinics III	4	Path.	226	Clinical Path. II	R
Surg.	186	Dis. of Sm. Animals	2	Surg.	131	Gynecology (½ class)	1
Path.	225	Clinical Path. I	R	V. M.	104	Jr.-Sr. Conf	R
Surg.	131	Gynecology (½ class)	1				
V. M.	103	Jr.-Sr. Conf	R				
Total			18 or 19	Total			18 or 19

Number of hours required for graduation, 147 for women, 149 for men.

Extracurricular Electives

FIRST OR SECOND SEMESTER

Anat.	206	Applied Anatomy	1 semester hour
Anat.	202	Special Anatomy	2–4 semester hours
Physiol.	215	Problems in Physiology	Credit to be arranged
Physiol.	228	Urine Analysis	1 semester hour
Path.	222	Pathological Technic and Diagnosis I	2 to 5 semester hours
Path.	223	Pathological Technic and Diagnosis II	2 to 5 semester hours
Path.	228, 231	Vaccine Manufacture I and II	Credit to be arranged
Path.	302	Research in Pathology	Credit to be arranged
Surg.	150	Extra Clinics	1 semester hour
Surg.	301	Research in Surgery	Credit to be arranged
Surg.	310	Research in Medicine	Credit to be arranged

Anatomy

Professor McLeod
Professor Burt
Assistant Professor Cover

The classroom instruction consists of lectures, quizzes, and recitations, and special dissection of the part under discussion; also a study of dissected specimens, various models, and the Azoux model of the horse. Mounted skeletons and limbs and loose bones are abundant in the museum. The horse is taken as a type, and the other domestic animals are compared with the horse. As often as necessary, parts of other animals are dissected to show the differences.

FOR UNDERGRADUATE CREDIT

113. Anatomy I. 6 semester hours. First semester.
A brief study of descriptive terms and osteology of the domestic animals. Dissection of either the thoracic limb and thorax or the pelvic limb and abdomen of the horse. Three hours of recitation and nine hours of laboratory a week. Charge, $10. Staff.

114. Anatomy II. 6 semester hours. Second semester.
Dissection of either the thoracic limb and thorax or the pelvic limb and abdomen and head and neck of the horse. Dissection and demonstration of the body cavities and certain superficial regions of other domestic animals. Two hours of recitation and twelve hours of laboratory a week. Prerequisite: Anat. 113. Charge, $10. Staff.

115. Topographic Anatomy. 1 semester hour. Second semester.
Dissection and demonstration of regions of diagnostic and surgical importance of the domestic animals. Three hours of laboratory a week. Prerequisite: Junior standing in Veterinary Medicine. Charge, $3. Staff.

FOR GRADUATE AND UNDERGRADUATE CREDIT

202. Special Anatomy. 2 to 4 semester hours. Each semester and summer.
The study of any part of the horse (as the digestive or reproductive system), ox, sheep, pig, dog, cat, or poultry. Prerequisite: Anat. 113, 114, 131, or equivalent. Charge, $5.00. Staff. Adapted to the work in which the student is specializing.

206. Applied Anatomy. 1 semester hour. First semester.
Dissection of certain areas embraced in performing the various surgical operations, and the study of all the structures in each area and their relation to one another as they would present themselves during an operation. Three hours of laboratory a week. Prerequisite: Anat. 114. Charge, $2.00. Staff.

Physiology

Professor LEASURE
Assistant Professor LINK

The Department of Physiology presents courses in comparative physiology, problems in physiology, urine analysis, pharmacodynamics, and anatomy and physiology. Instruction is by lectures, recitation, laboratory work, and demonstrations. The department is especially well equipped for resident instruction and research.

FOR UNDERGRADUATE CREDIT

131. Anatomy and Physiology. 3 semester hours. First semester.

Physiology of the domestic animals, with special emphasis on digestion, absorption, metabolism, and excretion; sufficient anatomy to give a thorough understanding of the correlation between the two subjects and of the physiologic relations existing among the various organs of the body. Two hours of recitation and three hours of laboratory a week. Charge, $1. Link. Adapted to students majoring in Animal Husbandry.

FOR GRADUATE AND UNDERGRADUATE CREDIT

215. Problems in Physiology. Credit to be arranged. Each semester.

Individual investigational problems in the physiology of digestion, reproduction, endocrine glands, etc. Prerequisite: Anat. 131 or Physiol. 222 or 227. Charge, $1.50 per semester hour. Leasure, Link.

222. Comparative Physiology I. 4 semester hours. Second semester and summer.

Physiology of the domestic animals; the blood, heart, and blood vessels, the ductless glands and internal secretions, respiration, digestion and absorption. The laboratory exercises consist of a practical application of the knowledge derived in the classroom. Laboratory directions furnished the student. Three hours of recitation and three hours of laboratory a week. Prerequisite: For veterinary students, Anat. 113 and Chem. 122 and 243, for others an approved course in organic chemistry. Charge, $5.00. Leasure, Link.

227. Comparative Physiology II. 4 semester hours. First semester and summer.

The urine and urinary system, nutrition, animal heat, muscular and nervous systems, locomotion, generation and development, growth and decay, and selected physiological experiments. Three hours of recitation and three hours of laboratory a week. Prerequisite: Same as for Physiol. 222. Charge, $5.00. Leasure, Link.

228. Urine Analysis. 1 semester hour. Second semester and summer.

A laboratory course devoted to the comparative study of human urine and the urine of domestic animals, especially the horse, cow, and dog. A microscopic study of urinary deposits will be carried out also. Prerequisite: Physiol. 227. Charge, $5.00. Leasure, Link. Class limited to ten students.

230. Pharmacodynamics. 3 semester hours. Second semester.

The study of the physiological and therapeutic action of substances other than foodstuffs in the living structures. Substances to be studied will include drugs, poisons, and hormones used in the practice of veterinary medicine. One hour of recitation and six hours of laboratory a week. Prerequisite: Physiol. 227. Charge, $10.00. Leasure, Link.

Pathology

Professor Roderick
Professor Kitselman*
Assistant Professor Thompson
Assistant Professor Wagers*
Assistant Professor McMahan
Instructor Leeper†
Instructor Jewell†
Technician Kimball

The Department of Pathology presents courses in histology, pathology, and meat inspection. Instruction is by lectures, recitation, laboratory work, and demonstrations with the aid of lantern slides and autopsies.

COURSES IN HISTOLOGY

FOR UNDERGRADUATE CREDIT

104. Histology I. 3 semester hours. First semester.
Origin, development, structure, and appearance of the various cells and tissues of the animal body. Particular attention is paid to the relationships between structure and function and to the fundamental similarities and differences of cells and tissues. One hour of recitation and six hours of laboratory a week. Charge, $3.00. Jewell.

106. Histology II. 3 semester hours. Second semester.
Origin, development, structure, and microscopic appearance of the various organs and systems of the animal body. Particular emphasis is laid on the correlation of tissue distribution and regional function. One hour of recitation and six hours of laboratory a week. Prerequisite: Path. 104. Charge, $3.00. Jewell.

FOR GRADUATE AND UNDERGRADUATE CREDIT

252. Special Histology. 3 semester hours. Each semester and summer.
Fundamental histological technics studied by means of problems. Nine hours of laboratory a week. Prerequisite: Path. 106. Charge, $3.00. Jewell.

COURSES IN PATHOLOGY

FOR GRADUATE AND UNDERGRADUATE CREDIT

203. Pathology I. 5 semester hours. First semester.
General pathology treating of the history of pathology, predisposition, immunity, congenital and inherited disease, etiology, course and termination of disease. Three hours of recitation and six hours of laboratory a week. Prerequisite: Physiol. 222 and Path. 106; Chem. 243. Charge, $3.00. Roderick, Leeper.

208. Pathology II. 4 semester hours. Second semester.
Special pathology, study of specific pathological processes occurring in the various organs of the body. Three hours of recitation and three hours of laboratory a week. Prerequisite: Path. 203. Charge, $3.00. Roderick, Leeper.

211. Pathology III. 3 semester hours. Second semester.
Special pathology continued. The pathology of infectious diseases. Two hours of recitation and three hours of laboratory a week. Prerequisite: Path. 208. Charge, $3.00. Roderick, Leeper.

215. Pathology IV. 3 semester hours. First semester.
The epidemiology and differential diagnosis of infectious diseases. Three hours of recitation and demonstration a week. Prerequisite: Path. 211. Charge, $2.50. Roderick.

218. Food Hygiene and Public Health. 5 semester hours. Second semester.
A study of the procedures and regulations covering the ante-mortem and

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* On Military leave.
† Temporary.

post-mortem inspection of food animals, sanitation, and the inspection of food products of animal origin. The place and work of a veterinarian in a public health organization. Five hours of recitation a week. Prerequisite: Path. 215. Thompson.

222, 223. Pathological Technic and Diagnosis I and II. 2 to 5 semester hours each. Each semester.

Pathological technic, collecting, fixing, embedding in paraffin, and sectioning of tissues, methods of preserving gross specimens, practice in post-mortem and laboratory diagnosis. Prerequisite: For I, Path. 203; for II, Path. 211 and 222. Charge, $3.00 to $7.50 for each course. Roderick, Kimball, Thompson.

225, 226. Clinical Pathology I and II. Credit in Clinics III and IV. Each semester.

The unification and practical application of the various laboratory test procedures to clinical diagnosis. Pathological examinations will include autopsies, biopsies, and hematological, bacteriological, seriological, chemical, pathological, and parasitological diagnosis. Prerequisite: Surg. 138, 144. Staff. Open only to senior students in veterinary medicine and graduate students.

228, 231. Vaccine Manufacture I and II. 2 to 5 semester hours each. Each semester and summer.

I. Theory and practice of immunization as applied to blackleg and hog cholera.

Laboratory.—Isolation and identification of the blackleg organism and of related anaerobes, and practical production of blackleg immunizing agents and antihog-cholera serum and virus.

II. Preparation and standardization of various veterinary biological products, such as tuberculin, bacterial vaccines, and bacterins.

Laboratory.—Production of some of the products mentioned and special work on blackleg immunizing agents and antihog-cholera serum and virus. Prerequisite: Bact. 117. Charge, $3 each course. Not offered in 1945-'46.

235. Applied Veterinary Parasitology. 3 semester hours. First semester.

The identification of parasites and the diagnosis of parasitoses. A consideration of the important parasitic diseases of livestock. Two hours of recitation and three hours of laboratory a week. Prerequisite: Zoöl. 208. Charge, $2. Jewell. Limited to veterinary students.

FOR GRADUATE CREDIT

302. Research in Pathology. Credit to be arranged. Each semester.

Individual research in the pathology of an animal disease problem. Prerequisite: Path. 215 and 222. Charge $1.50 to $15. This work may form the basis for the master's thesis.

Surgery and Medicine

Professor Frick
Professor Dykstra
Professor Frank
Assistant Professor Moore
Instructor Witter
Instructor Oberst

The veterinary hospital is equipped with every modern appliance for surgical operations and treatment of animal diseases. The hospital has a capacity for more than fifty horses or cattle, and in addition it can accommodate fifty small animals, such as sheep, swine, cats, dogs, etc. Members of the clinical staff, accompanied by students, make trips into the surrounding country to treat patients. In this way the student comes in contact every year with the diseases of animals and their treatment.

COURSES IN SURGERY

FOR UNDERGRADUATE CREDIT

108. Surgery I. 4 semester hours. First semester.
Lectures, recitations, and demonstration on the fundamental principles of surgery, methods of restraint, asepsis, and antisepsis, anesthesia, division of tissues, union of tissues, control of hemorrhage, neoplasms, and animal dentistry. Four hours of recitation a week. Prerequisite: Junior standing in veterinary medicine. Frank.

109. Surgery II. 4 semester hours. Second semester.
Lectures, recitations, and demonstration on the surgical diseases of domestic animals; horseshoeing is included. Four hours of recitation and demonstration a week. Prerequisite: Surgery 108. Frank.

112. Surgical Exercises. 1 semester hour. First semester.
Surgery on anesthetized animals, and on cadavers; fractures, dressings, X-ray technics. Three hours of laboratory a week. Prerequisite: Surgery 109. Charge, $10. Staff.

114. Small Animal Surgery. 2 semester hours. First semester.
Description and application of practical surgery on small animals, including anesthesia. Two hours of recitation a week. Prerequisite: Junior or senior standing in veterinary medicine. Frick, Witter, Oberst.

FOR GRADUATE CREDIT

301. Research in Surgery. Credit to be arranged. Each semester.
The purpose of this course is to attempt to solve many of the surgical problems confronting the average veterinary practitioner. Prerequisite: Anat. 113, 114, and 115; Surg. 108, 109, and 163. Frank, Dykstra. Offered especially for graduates in veterinary medicine.

COURSES IN OBSTETRICS

FOR UNDERGRADUATE CREDIT

130. Obstetrics and Breeding Diseases. 5 semester hours. Second semester.
Physiology of reproduction, principles of normal and abnormal parturition, special attention given to handling of reduced fertility. Five hours of recitation a week. Prerequisite: Senior standing in veterinary medicine. Moore.

131. Gynecology. 1 semester hour. Each semester one-half of class.
Practical exercises in diagnosing and treating sterility, abortion, and dystocia, and the insemination of large animals. Three hours of laboratory a week. Prerequisite: Senior standing in veterinary medicine. Charge, $3. Moore.

COURSES IN CLINIC

FOR UNDERGRADUATE CREDIT

138, 141. Clinics I and II. 2 semester hours each. First and second semesters respectively.
All species of domestic animals are treated at a free clinic. Students assist in the restraint of animals, in bandaging, in compounding prescriptions, and in preparing antiseptics and other medicinal agents. Six hours of laboratory a week. Prerequisite: Junior or senior standing in veterinary medicine. Charge, $5.00 for each course. Staff.

144, 147. Clinics III and IV. 4 semester hours each. First and second semesters respectively.
Diagnosis and treatment of hospital patients, including keeping clinical records, administering medicines, changing dressings on surgical wounds,

X-ray technic, etc.; assisting clinicians in out-clinic work. Twelve hours of laboratory a week. Prerequisite: Junior or senior standing in veterinary medicine. Charge, $5.00 for each course. Staff.

150. Extra Clinics. 1 semester hour. Each semester and summer.
A course in clinics intended for those undergraduate students desiring clinical training in addition to that offered in the curriculum in veterinary medicine. Three hours of laboratory a week. Prerequisite: Surg. 141 or 147. Charge, $2.50. Staff.

COURSES IN MATERIA MEDICA

FOR UNDERGRADUATE CREDIT

158. Materia Medica. 4 semester hours. Second semester.
A detailed study of important drugs; their origin, properties, and classification; their physiological actions, clinical administration, and dosage; metrology, prescription writing, pharmaceutical processes, and pharmaceutical preparations; compounding of prescriptions. Three hours of recitation and three hours of laboratory a week. Prerequisite: Sophomore standing in veterinary medicine. Charge, $3.00. Witter.

163. Therapeutics. 3 semester hours. First semester.
History of therapeutics; healing methods; types of therapy, including mechanical, chemical, electrical, biological, dietetic, and thermal; toxicology as encountered in veterinary practice. Three hours of recitation a week. Prerequisite: Surg. 158. Witter.

COURSES IN MEDICINE

FOR UNDERGRADUATE CREDIT

110. Diagnosis. 2 semester hours. First semester.
Differential diagnostic methods employed for the detection of disease. Two hours of recitation a week. Prerequisite: Junior standing in veterinary medicine. Oberst.

111, 113. Diseases of Large Animals I and II. 4 semester hours each. Second semester and first semester respectively.
I. Noninfectious diseases of the digestive, circulatory, and respiratory organs of the larger animals.
II. Noninfectious diseases of the urinary organs, diseases of metabolism, of the nervous system, the organs of locomotion, the skin, and the eye.
Four hours of recitation a week each semester. Prerequisite: Surg. 158 and junior or senior standing in veterinary medicine. Frick, Moore.

181. Infectious Diseases of Large Animals. 5 semester hours. Second semester.
Five hours of recitation a week. Prerequisite: Surg. 113 and senior standing in veterinary medicine. Frick.

186. Diseases of Small Animals. 2 semester hours. First semester.
Infectious and noninfectious canine and feline diseases; breeds of dogs, cats, and fur-bearing animals; erection of kennels; the breeding and care of puppies; care and feeding of dogs in general, and the hygienic measures pertaining thereto. Two hours of recitation a week. Prerequisite: Surg. 158 and 163 and senior standing in veterinary medicine. Frick.

191. Medical Economics and Law. 2 semester hours. Second semester.
The veterinarian's legal responsibilities; national and state livestock laws; quarantine regulations; principles of business law. Two hours of recitation a week. Prerequisite: Senior standing in veterinary medicine. Staff.

FOR GRADUATE CREDIT

310. Research in Medicine. Credit to be arranged. Each semester and summer.

An attempted solution of some of the medical and parasitological problems confronting the practitioner of veterinary medicine. Prerequisite: Surg. 111, 113, 158, and 181. Frick. Offered especially for graduates in veterinary medicine.

General Veterinary Medicine

V. M. 101, 102, 103, 104. Junior-Senior Confernce. Required. Each semester.

A faculty-junior-senior conference for the purpose of reviewing all factors concerned in the diagnosis of animal ailments. One hour a week. Prerequisite: Junior or senior standing in veterinary medicine. Staff.

The Division of College Extension

H. J. C. Umberger, *Dean and Director*

Extension Publicity and Information

Professor Longsdorf, Extension Editor and Program Director, in Charge
Assistant Professor Warner, Assistant Extension Editor
Instructor Scheel,* Extension Editor
Instructor Shankland, Assistant Extension Editor
Instructor ———, Assistant Extension Editor
Instructor Dexter, Assistant Extension Editor
Instructor Kelly,‡ Assistant Extension Editor
Instructor Cooper,‡ Assistant Extension Editor
Instructor Smith,‡ Assistant Extension Editor
Instructor Borrego, Assistant Extension Editor

The Division of College Extension offers the benefits of the College to Kansas farm people. It is active in every county. By means of institutes, training schools, publications, correspondence courses, and radio programs, information on agriculture, home economics, and engineering extension is made readily available to all.

In the beginning, this work was informal. Members of the College staff answered inquiries by mail and cocasionally met with small groups at various places in the state. The exchange of information thus made possible proved valuable both to the citizens of the state and to the College investigators. In 1914, with the passage of the Smith-Lever Act, this type of work became a coöperative undertaking of the federal and state governments, through the United States Department of Agriculture and the agricultural colleges.

There now are six major departments in this division, each with its own head and staff. Coöperatively employed Extension agents are located in 103 counties. The Extension organization, which reaches more than 800,000 Kansas people each year, still serves its original function of a two-way communication system between the College and the general public. Extension workers take to the people of the state information developed by the experiment stations, by the United States Department of Agriculture, and by the experience of the best farmers and homemakers. They bring to the state and federal research workers information concerning problems that are of immediate general interest. Their goal is to assist in making agriculture more prosperous and rural living more satisfying.

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* On leave.

‡ Temporary.

Extension Schools

In Agriculture and Home Economics

Professor WILLIAMS in Charge

Professor LUMB, Veterinary Medicine
Professor KELLY, Entomology
Professor AMSTEIN, Horticulture
Professor ELLING, Animal Husbandry
Professor LINN, Dairy Husbandry
Professor WILLOUGHBY, Agronomy
Asso. Professor COMPTON, Agronomy
Asst. Professor LIND, Agronomy
Assoc. Prof. ————, Animal Husbandry
Assoc. Prof. SEATON, Poultry Husbandry
Asst. Prof. HALBROOK, Poultry Husbandry
Assoc. Prof. CLEAVINGER, Farm Crops
Assoc. Prof. STOVER, Dairy Husbandry
Asst. Prof. GRIFFITH, Agricultural Economics
Assoc. Prof. COOLIDGE, Agricultural Economics
Assoc. Prof. JACCARD, Agricultural Economics
Asst. Prof. COPENHAFER,* Landscape Gardening
Instructor TAYLOR, Agricultural Economics
Instructor PICKETT, Agricultural Economics
Asst. Prof. SHOEMAKER, Agricultural Economics
Instructor BROWN, Agricultural Economics
Instructor ————, Forestry
Asst. Prof. MILLER, Plant Pathology
Instructor RAWLINS, Agricultural Economics
Instructor TOLLE, Agricultural Economics
Instructor MEANS, Agricultural Economics

This department includes those members of the Extension staff who conduct and supervise programs in agricultural education throughout the state. The programs are developed in coöperation with the residents of the counties through their designated leaders. The department has charge of the program and arrangements for Farm and Home Week, annual state-wide farmers' meetings, and the scheduling of judges for county and local fairs.

FARM AND HOME INSTITUTES

A farm and home institute is an association of farmers and farm homemakers with regular officers, constitution, and bylaws. Some organizations hold six or more meetings during the year, and no institute can obtain state aid unless, in addition to the annual meeting at which representatives of the Collegs must be present, it also holds at least three local meetings. It is the plan of the College to send two specialists, one in agriculture and one in home economics, to the annual meetings to present certain well-defined lessons and to give the results of demonstration work for the county or locality. The specialists and their subjects are chosen because of known need of interest of a particular community, or because of a plan to start or encourage certain definite lines of work.

EXTENSION SCHOOLS

Extension schools are meetings, of one- or two-day duration, conducted for the purpose of giving practical instuction in agriculture, engineering, and home economics. Most of these schools are organized on a project basis, and they are an important feature in the yearly program of work conducted by each specialist. Results of demonstrations and experiments are given at these meetings, and suggestions are made for their practical application under local conditions.

Extension schools are classified according to the subject matter presented. Each year schools are held in horticulture, animal husbandry, veterinary medicine, entomology, poultry husbandry, dairying, agronomy, engineering, marketing, farm management, plant pathology, and farm forestry. In addition to these specialized meetings, schools of a more general character are held, and these are designed to present the Extension program best suited to the communities of the county. Home economics and 4-H club work have an important place on the program of the schools.

EXTENSION PROJECTS

The specialists of the division work in Extension schools and institutes during the winter months only, and a portion of this time is devoted to coöperative demonstration work in agriculture and home economics. During the re-

* On leave.

mainder of the year, they conduct special Extension programs in soil management and crop production, plant pathology, horticulture, animal husbandry, dairying, veterinary medicine, poultry husbandry, entomology, farm management, marketing, agricultural planning, and farm forestry. This phase of the work of the Extension specialist is supplemented by coöperative demonstration work. In much of the coöperative work, each specialist has from 10 to 100, or more, coöperators in each county. These men and women work under the direction of the specialist and the county agent. They keep records of the work, and demonstration meetings are held at their farms.

The Extension specialist takes to the farm and farm home the results of the research work of the Agricultural Experiment Station and the United States Department of Agriculture in a practical, effective, and usable form. He brings back reports of the progress of demonstration work in the field. He seldom makes a trip without coming in contact with agricultural problems requiring the attention of research workers.

COUNTY AND LOCAL FAIRS

The agricultural specialists devote some time each year to judging livestock and agricultural products at state, county, and local fairs. An excellent opportunity for lectures and demonstration work is furnished, and each specialist endeavors to make his judging work as instructive as possible.

FARM AND HOME WEEK

The purpose of Farm and Home Week is to interest the farmers of the state in methods of production and management that will increase farm profits, to demonstrate to farm women methods of home management that will add to the comfort and enjoyment of farm life, and to encourage farm folks in social organization that will enrich the social life of the rural community.

All meetings, lectures and demonstrations during Farm and Home Week are free of charge. The United States Department of Agriculture, the Agricultural Experiment Station, the Extension Service, agricultural specialists, and leading farmers bring to those in attendance the latest results of investigations in agriculture, home economics, and engineering extension. Problems concerning crops and soils, dairying, beef cattle, horses, hogs, sheep, poultry, horticulture, community service, beekeeping, and diseases of animals are discussed by some of the leading agricultural authorities in America. In addition to these lectures and demonstrations, there are other interesting features.

County Agent Work

Associate Prof. Turner, Field Agent
Asst. Prof Blecha, District Agent
Asst. Prof. Baird, District Agent
Asst. Prof. Teagarden, District Agent
Asst. Prof. Robinson, District Supervisor
Asst. Prof Glover, District Supervisor
Asst. Prof Neff, District Supervisor

The county agent constitutes a direct and continuous contact of the College and the United States Department of Agriculture with the rural population of the state. The program of county agent work is as broad as the interests of rural life. It includes the farm as a business, the farm home, the farm youth, and the rural community. The program for the farm as a business involves those things that may be done by the individual farmer and those that require extensive coöperation among farmers. On the one hand, it includes organization and management, and production problems, such as soil management, erosion control, cropping systems, crop pests, adapted crop varieties, and livestock management. On the other hand, it includes coöperative financing, cooperative marketing of farm products, and agricultural adjustment procedure.

The first county agricultural agent in Kansas was employed by the Leavenworth County Farm Bureau, August 1, 1912. At first, county agents were financed by membership dues, private subscription, and a small state appropriation. In 1914, Congress enacted the Smith-Lever law, and in 1915, the Kansas legislature passed the farm-bureau law. These statutes remain the basis of county agent work. Additional federal funds have been made available in recent years under several other statutes, such as the Capper-Ketcham, Clarke-McNary, Norris-Doxey, and Bankhead-Jones acts.

On October 1, 1944, there were 103 county agricultural agents and 19 assistant county agricultural agents. Nineteen of the assistant county agricultural agents served as testers for dairy herd improvement associations.

Home Economics

Professor SMURTHWAITE, State Home Demonstration Leader, in Charge

DISTRICT AGENTS

Asst. Prof. BACHELOR†
Asst. Prof. MEYER
Asst. Prof. WINTER‡
Asst. Prof. BURTIS

SPECIALISTS IN HOME ECONOMICS

Assoc. Prof. ALLEN, Foods and Nutrition
Asst. Prof. WIGGINS, Clothing and Textiles
Asst. Prof. FLETCHER, Foods and Nutrition
Asst. Prof. MYERS, Home Management
Asst. Prof. FARRIS, Home Furnishings
Asst. Prof. ————, Clothing and Textiles
Asst. Prof. ELLITHORPE, Home Management
Asst. Prof. COMPTON, Recreation
Instructor MARTIN, Home Health and Sanitation
Instructor JOHNSON,‡ Clothing and Textiles
Asst. in Home Economics BACHELOR‡

Extension work in home economics is carried on in counties through organized groups and through Extension schools, particularly those of the more general type. Organized programs are pursued throughout the year in connection with county farm bureaus. Material furnished by the specialists and by home demonstration agents is used by local leaders in their respective communities.

Home demonstration work was made possible in August, 1917, when Congress provided funds for the employment of emergency home demonstration agents. The work was instituted under the auspices of city or county organizations, but after a short time the placing of home demonstration was deferred until the counties were properly organized for this specific purpose. Since August, 1918, the organization of a county farm bureau, providing membership for women as well as for men, has been required; and since July 1, 1921, a county desiring a home demonstration agent has had to provide a well-equipped office with adequate stenographic help, transportation facilities, and a county appropriation of not less than $2,400 toward the salaries and expenses of the agricultural agent and the home demonstration agent.

The program of work for the home demonstration agent is based on the interest and the needs of the communities in the county. It is evolved through community and committee meetings and includes the development of activities pertaining to the farm, the home, and the community. Such programs of work become a part of the state program. On October 1, 1944, 51 counties had home demonstration agents, and 7 assistant home demonstration agents were being trained in the various counties under the leadership of county home demonstration agents.

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† On leave.
‡ Temporary.

Boys' and Girls' 4-H Club Work

Assoc. Prof. J. Harold Johnson, Acting State Club Leader
Assoc. Prof. Border, Junior Extension
Assoc. Prof. Regnier, Junior Extension
Instructor Smerchek,‡ Junior Extension

The 4-H Club work is conducted by the College in coöperation with the counties, the county farm bureaus, and the United States Department of Agriculture. Community 4-H Clubs are open to all young people between the ages of 10 and 20 years, inclusive. They work under the direction of the county Extension agents with the help of local voluntary 4-H Club leaders. Local organizations also give valuable assistance. County 4-H councils assist the county agents in the supervision and promotion of the 4-H program. 4-H Club members receive visits from their county agents and from their local leaders; written material is prepared by specialists and sent out by the state club leader to give members definite information and suggestions on farm and home practices recommended by the College.

The origin of the 4-H Club work is obscure. Shortly after 1900, farmers' institutes, farm leaders, and educators, in various parts of the country, made efforts to bring about a more definite connection between real life and school life. They assisted boys and girls to conduct, at home, various educational demonstrations or contests centered around improved agricultural practices.

It became evident that the educational development of the boys and girls was of greater importance than the spread of improved farm and home practices. Hence the 4-H Club program was broadened to include not only projects of a farm and home nature, but also many activities, such as health, music, conservation of wild life and natural resources, recreation, parliamentary practices, and art. The present 4-H Club program is designed to develop wholesome citizenship and leadership among rural young people and to provide them with the opporunity to participate with their parents and friends in the adoption and spread of better farm and home practices. Coöperation with the group is promoted, leadership is encouraged, exhibitions and contests are conducted, accurate records and reports are required, and achievements are suitably recognized. Wholesome recreation is promoted, and county and statewide roundups, camps, and conferences are arranged. On October 1, 1944, nine county club agents were employed.

Engineering Extension

Assoc. Prof. Ferguson, Agricultural Engineering, in Charge
Instructor Bader, Architecture
Instructor Selby, Agricultural Engineering
Instructor Stover,* Agricultural Engineering
Instructor Smith, Agricultural Engineering

The function of this department is to assist in the application of engineering principles to various phases of agriculture. In the beginning, in 1910, it dealt chiefly with drainage and irrigation. Other subjects have been added, including the control of soil erosion, farm buildings, conveniences for the farm home, rural electrification, and farm machinery. Annually, thousands of direct inquiries on these subjects are answered by mail.

Much of the work is conducted in coöperation with the county farm bureaus. All counties in the state are coöperating with the department in demonstration work, involving drainage, irrigation, or the control of erosion. Standardized plans for hundreds of farm buildings are furnished each year. One-day builders' schools are held in various counties to supply information on

‡ Temporary.
* On leave.

the planning, construction, and maintenance of farm buildings. Advice is given on the selection, installation, and operation of systems of water supply, sewage disposal, lighting, and heating for the rural home. The selection, use, adjustment, and repair of farm machinery are discussed with distributors and farmers in one- and two-day schools.

Home Study

Professor GEMMELL, in Charge
Professor FLEENOR, Education
Professor PATTISON, Mechanical Engineering
Assoc. Prof. BILLINGS, History and Government
Assoc. Prof. SCHALL, English
Asst. Prof. BILLINGS, Agriculture

The Department of Home Study is a member of the National University Extension Association, comprising 48 leading universities in America with whom extension credits are interchangeable. The members of the department devote their entire time to the work of teaching by correspondence. They advise with the various departments of the College, and all credit courses that are offered by correspondence must first meet the requirements of the regular College departments handling the courses in residence.

There are many people in Kansas and elsewhere who cannot attend classes on the College campus, but who can use the facilities of the College to advantage. The Department of Home Study is designed through correspondence courses to enable the College to go to those who cannot come to it. The gross time required to complete correspondence courses is practically the same as is necessary for the same courses in residence.

FOR WHOM INTENDED

Though credit courses offered by the Department of Home Study are limited, it is the purpose of the department to add courses whenever a demand for them becomes evident. The following groups in particular should profit by the courses offered:

1. Those who have completed a common-school course but who are unable to attend high school.
2. High-school graduates who are unable to attend college.
3. Students who have fallen behind in their work and wish to use their spare time catching up.
4. Students whose attendance at high school or college has been interrupted.
5. Aggressive students who do not wish to have their progress retarded by vacations and other interruptions.
6. High-school and grade-school classes in practical courses that need supplementing and enrichment.
7. Teachers who wish further training or who need help in planning and conducting their work.
8. Professional and business men who wish to keep growing along some line of interest, industrial or avocational.
9. Clubs and other organizations that wish to make systematic studies.
10. Men and women who wish effective help in meeting the demands of their vocations for technical and scientific knowledge and training.

HOW THE WORK IS CONDUCTED

In correspondence courses, the work usually takes the form of assigned readings, studies, problems, and investigations, together with a list of questions and directions for a written report. The correspondence lesson is usually much longer than the common lesson in resident class work, eight such lessons being the equivalent of one semester hour of college credit. When necessary, the lessons are supplemented by lectures prepared by the instructor. These lec-

tures contain outlines and explanations, additional subject matter, and such special directions as seem desirable.

As soon as an enrollment card and fee are received at the Department of Home Study, the first assignments are sent out. As reports are received, additional assignments are mailed. The plan keeps work always at hand for the student, making it possible for the instructor to study the student's progress and to offer suggestions to guide the student in his work. The student should make careful study of the corrections, comments, and suggestions upon receiving a returned paper before going further with succeeding lessons.

The progress made by the student depends entirely upon his ability, preparedness, and application. In general, an hour a day spent in systematic study should enable the average student to complete an assignment a week. Students may work more rapidly if their opportunities permit. Lessons will be received as rapidly as is consistent with good work, provided not more than eight assignments are sent in one week. Under no circumstances will hastily prepared manuscripts showing superficial knowledge, be accepted.

The questions accompanying each assignment are intended to help the student to a better understanding of the subject. After careful study of the assignment, the student is required to write his manuscript, answering the questions carefully and concisely. The manuscript is then mailed to the Department of Home Study, where all lesson papers are read carefully, criticized, marked, and returned to the student with such comments, suggestions, advice, and additional references as may be deemed necessary. Each student is invited to ask questions, relate his personal experience, and in every way possible seek the advice of his instructors.

The department spares no effort to bring about the nearest possible approach to personal acquaintanceship between each instructor and his students. To this end the student is required to fill out and mail to the department, with his first lesson, a personal acquaintance blank giving full information about himself, his aims, ambitions, and previous experience and education, as well as the conditions of his daily work that necessarily affect his responses to the lessons. This information enables the instructor to enter at once into cordial, sympathetic, and helpful relations with the student.

EXAMINATIONS

At the close of each course, before a grade is issued, a final examination is necessary. The final examination may be taken in the office of the Department of Home Study at the College, or other arrangements may be made by the student to take it locally under the city or county superintendent of schools or the principal of the local high school. In the latter case, the examination questions and instructions for conducting the examination are mailed from the department to the examiner, and the student's paper is sent in by him.

FEES

For residents of Kansas, there is an initial enrollment fee of $10 for a course of three, or less, semester hours of credit, with $3 additional for each added hour of work; for nonresidents of the state, there is an initial enrollment fee of $15 for a course of three or less semester hours of credit and $4 for each additional hour of work.

For courses of secondary school (high school) grade, there is an initial enrollment fee for residents of the state of $6 for the first half-unit course and $5 for each additional half-unit course; for nonresidents of the state, there is an initial enrollment fee of $9 for the first half-unit course, with a fee of $7 for each additional half-unit.

Each student pays the postage on his lessons, manuscripts, and communications sent to the department. The department pays the postage for the return of all such papers to students.

REGULATIONS

1. Enrollments for correspondence study will be received at any time during the year, and students may continue their work throughout the entire year.
2. Correspondence students are expected to complete any course for which they are enrolled within 12 months from date of enrollment.
3. Not more than two courses are advised at any one time. It is recommended that a student carry but one subject at a time, particularly where only part of the time is given to the work.
4. Each subject listed under the various departments constitutes what is known as a correspondence "course."
5. Students enrolling for correspondence courses must meet the prerequisites the same as if undertaking the work in residence.
6. A student may not be enrolled for correspondence work while in attendance at any institution of learning without special permission from the dean or proper authorities in the institution of which he is a student.
7. No correspdondence student will be permitted to complete a three-hour course in less than three weeks, a two-hour course in less than two weeks, or a one-hour course in less than one week.
8. Where there is evidence that any correspondence student has copied any part of the lessons from the papers of another student who has previously taken the course, such student will be automatically, and permanently dropped from the course and a failing grade will be sent to the registrar's office with notation of the cause.
9. Credit for correspondence courses is determined by a final examination prepared by the Department of Home Study.

STUDY-CENTER EXTENSION CLASSES

Study-center classes conducted by regular instructors from the College may be organized if the demand is sufficient. Regulations concerning such classes are obtainable from the Department of Home Study.

HIGH-SCHOOL COURSES

(College Entrance Credit Work)

In offering the following work for high-school credit, there is no intention of competing with high schools of the state. It is not the purpose of those who have planned the work to present a full four-year high-school course. Students who can attend high school should do so, for in such attendance they will have the benefits to be derived from association with fellow students, as well as many other advantages that will be helpful to immature students of high-school age.

These courses are offered as an aid to those who may be temporarily out of high school, who may not find the work that they desire offered locally, or who wish to work for high-school credit during vacation periods. It is not to be expected that a student can progress as rapidly by correspondence-study methods as he can by devoting his full time to his work when attending high school. Any student who completes a half year of high-school work in a year by correspondence may feel that he has done exceedingly well.

The high-school courses will be especially advantageous to prospective college students who have entrance deficiencies and to school teachers who may not have had the opportunity to do this type of work. No effort has been spared to make the work as nearly as possible parallel with the course offered by the accredited high schools of the state. The same textbooks have been used wherever feasible, and the credits issued by this department are recognized by the colleges and State Board of Education.

List of High-school Courses

Course No.			*Number of assignments*	*Unit H. S. credit*
		AGRICULTURE		
PCA	1.	Elementary Agriculture I	20	½
PCA	2.	Elementary Agriculture II	20	½
		DRAWING		
PCD	3.	Shop Mechanical Drawing I	20	½
PCD	4.	Shop Mechanical Drawing II	20	½
		ENGLISH		
PCE	1C.	Grammar and Composition (first year)	20	½
PCE	2L.	Literature (first year)	20	½
PCE	3C.	Composition (second year)	20	½
PCE	4L.	Literature (second year)	20	½
PCE	5C.	Composition (third year)	20	½
PCE	6L.	Literature (third year)	20	½
		HISTORY AND CIVICS		
PCH	1.	Ancient History I	20	½
PCH	2.	Ancient History II	20	½
PCH	3.	Modern History I	20	½
PCH	4.	Modern History II	20	½
PCH	5.	American History I	20	½
PCH	6.	American History II	20	½
PCH	7.	Community Civics	20	½
PCH	8.	Constitution of United States	20	½
PCH	9	World History I	20	½
PCH	10	World History II	20	½
		MATHEMATICS		
PCM	1.	Algebra I	20	½
PCM	2.	Algebra II	20	½
PCM	3.	Algebra III	20	½
PCM	4.	Plane Geometry I	20	½
PCM	5.	Plane Geometry II	20	½
PCM	6.	Solid Geometry	20	½
PCM	7.	Bookkeeping	20	½
		SCIENCE		
PCS	1.	Physical Geography	20	½
PCS	2.	Botany	20	½
PCS	4.	Physiology	20	½
PCS	5.	General Science	20	½
PCC	1.	Commercial Geography	20	½
PCC	2.	Elementary Economics	20	½
PCC	3.	Elementary Sociology	20	½
PCC	4.	Elementary Psychology	20	½

COLLEGE COURSES

Numerous college courses paralleling resident courses and carrying the same credit are offered through the Department of Home Study. These will be found especially advantageous for college students who desire to make up deficiencies or to gain credits during the vacation season, for teachers who wish to further their professional training, and for men and women who wish to promote their culture, technical, or vocational interests. The prerequisites are the same as for corresponding courses in resident instruction.

The following course is available through resident enrollment for graduate and undergraduate credit. Graduates may be enrolled for from one to six hours of research or problem work *in absentia,* on the recommendation of a member of the graduate faculty and with the approval of the Dean of the Graduate School.

Educ. 249. Problems in Extension Education. Credit to be arranged.

Prerequisite: Econ. 151 or CS 3, and Educ. 184 or CP 8. Dr. Gemmell and Dr. Fleenor.

Problems in extension met by director, supervisor, county agricultural agent, county home demonstration agent, 4-H club leader, or specialist.

List of College Courses

SCHOOL OF AGRICULTURE

Course No.			*Assignments*	*Semester hours of credit*
		AGRONOMY		
CA	3.	Farm Crops	16	2
		ANIMAL HUSBANDRY		
CL	2.	History of Breeds	16	2
		HORTICULTURE		
CH	1.	Elements of Horticulture	16	2
CH	2.	Vegetable Gardening	16	2
CH	3.	Floriculture	16	2
CH	5.	Landscape Gardening	8	1
CH	6.	Small Fruits	16	2
		POULTRY HUSBANDRY		
CPP	1.	Farm Poultry Production	8	1

SCHOOL OF ENGINEERING

		MACHINE DESIGN		
CE	2.	Engineering Drawing	16	2
CE	6.	Machine Drawing I	16	2
CE	4.	Mechanism	24	3
CE	11.	Descriptive Geometry	16	2
		SHOP PRACTICE		
CE	7.	Metals and Alloys	16	2
		AGRICULTURAL ENGINEERING		
CE	3.	Gas Engines and Tractors	16	2
		MECHANICAL ENGINEERING		
CE	9.	Steam Turbines	16	2

SCHOOL OF ARTS AND SCIENCES

		ECONOMICS AND SOCIOLOGY		
CEc	1.	Economics	24	3
CS	2.	Rural Sociology	24	3
CS	3.	Sociology	24	3
CS	4.	Community Leadership	16	2
		EDUCATION (PROFESSIONAL)		
CP	2.	Educational Psychology	24	3
CP	3.	Educational Sociology	24	3
CP	4.	History of Education	24	3
CP	5.	School Management	24	3
CP	6G.	General Methods for Elementary Teachers	32	4
CP	6H.	Methods of Teaching in the High School	24	3
CP	7.	Educational Administration	24	3
CP	8.	Psychology	24	3
CP	14.	Vocational Education	24	3
CP	17.	Introduction to Philosophy	24	3
CP	19.	Essentials of Reading	24	3
		ENGLISH		
CCE	1.	College Rhetoric I	24	3
CCE	2.	College Rhetoric II	24	3
CCE	3.	Commercial Correspondence	24	3
CCE	4.	The Short Story	24	3
CCE	6.	English Literature	24	3
CCE	7.	American Literature	24	3
CCE	8.	Children's Literature	24	3
		JOURNALISM		
CCJ	1.	Agricultural Journalism	24	3

LIST OF COLLEGE COURSES—CONCLUDED

SCHOOL OF FINE ARTS AND SCIENCES—CONCLUDED

Course No.		PHYSICAL EDUCATION	*Assignments*	*Semester hours of credit*
CPE	1.	Personal and Community Hygiene	24	3
CPE	2.	Community Health	8	1
CPE	3.	Playground Activities	16	2
		GEOLOGY		
CG	1.	Geology	24	3
CG	2.	Principles of Geography	24	3
		HISTORY AND CIVICS		
CHC	1.	Community Civics	16	2
CHC	106.	Survey of World Civilizations I	24	3
CHC	107.	Survey of World Civilizations II	24	3
CHC	151.	American Government	24	3
CHC	127.	Survey of American History I	24	3
CHC	128.	Survey of American History II	24	3
CHC	7.	History of Latin America	24	3
		MATHEMATICS		
CM	6.	Solid Geometry	16	2
CM	7.	Plane Trigonometry	25	3
CM	8.	College Algebra	24	3
CM	9.	College Algebra A	40	5

Officers of Administration, Instruction, and Research

ABERLE, NELLIE, Assistant Professor of English.
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ADAMS, JOHN HAROLD, Professor of Physical Education. On leave.
B. S., University of Southern California.

AGAN, ANNA TESSIE, Associate Professor of Household Economics.
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AHEARN, MICHAEL FRANCIS, Professor and Head of Department of Physical Education; Director of Athletics.
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SNOOK, ROBERT R., Physician and Acting Head of Department of Student Health.
B. S., M. D., University of Kansas.

SOCOLOFSKY, CHARLES RAYMOND, (Temporary) Instructor in Physical Education and Athletics.
B. S., Kansas State College.

SPERRY, ARTHUR BRADLEY, Professor of Geology.
B. S., University of Chicago.

STEBBINS, FLORENCE MARGARET, Assistant in Genetics, Department of Zoölogy; Agricultural Experiment Station.
B. S., M. S., Kansas State College.

STEWART, ELIZABETH A., Instructor in Food Economics and Nutrition.
A. B., Southwestern College; M. A., Columbia University.

STEWART, HARRY MARTIN, Professor of Accounting.
A. B., M. B. A., C. P. A., University of Kansas.

STICKLEY, EDWARD S., Assistant Chemist, Agricultural Experiment Station. On leave.
B. S., Washburn College; M. S., Kansas State College.

STINSON, THOMAS BRUCE, Superintendent, Tribune Branch Agricultural Experiment Station.
B. S., Kansas State College. Address, Tribune, Kan.

STOVER, HAROLD EARL, Instructor in Agricultural Engineering, Division of College Extension. On leave.
B. S., Kansas State College.

STOVER, RAYMOND LUTHER, Associate Professor of Dairy Husbandry, Division of College Extension.
B. S., Kansas State College; M. S., Oregon Agricultural College.

STRATTON, CHARLES WILLIAM, Associate Professor of Music.
B. Mus., M. S., Kansas State College.

STRATTON, WILLIAM TIMOTHY, Professor and Head of Department of Mathematics.
A. B., A. M., Indiana University; Ph. D., University of Washington.

STRICKLAND, VIVAN LEWIS, Professor of Education.
A. B., A. M., Ph. D., University of Nebraska.

STURMER, ANNA MARIE, Associate Professor of English.
A. B., A. M., University of Nebraska.

SULLIVAN, FRANCIS JOSEPH, Instructor in Machine Design. On leave.
B. S. in M. E., Harvard University; M. S., Kansas State College.

SWANSON, ARTHUR FRITHIOF, Associate Agronomist, Division of Cereal Crops and Diseases, U. S. D. A.; in charge of Cereal Investigations, Fort Hays Branch Agricultural Experiment Station.
B. S., Kansas State College; M. S., University of Minnesota. Address, Hays, Kansas.

SWANSON, CHARLES OSCAR, Professor of Milling Industry Emeritus; Associate Cereal Technologist, Agricultural Experiment Station.
A. B., Carleton College; M. Agr., University of Minnesota; Ph. D., Cornell University; Sc. D., Carleton College.

SWANSON, EMERY CARLTON, Assistant Chemist, U. S. D. A.; Research Assistant in Milling Industry, Agricultural Experiment Station.
B. S., University of Minnesota; M. S., Kansas State College.

SWEEDLUN, VERNE S., Associate Professor of History and Government.
A. B., Bethany College; M. A., University of Kansas; Ph. D., University of Nebraska.

TAYLOR, DELOS CLIFTON, Maj. C. A. C., U. S. A.; Assistant Professor of Applied Mechanics. On leave. Professor of Military Science and Tactics.
B. S., M. S., Kansas State College.

TAYLOR, LOT FORMAN, Instructor in Agricultural Economics, Division of College Extension; Fieldman, Farm Management Association No. 1.
B. S., Kansas State College.

TEAGARDEN, EARL HICKS, Assistant Professor of Agricultural Extension, District Agent, Division of College Extension.
B. S., Kansas State College.

THACKREY, RUSSELL IRA, Dean of Administration; Director of the Summer School.
B. S., M. S., Kansas State College.

THEIM, CAROL CLARK, (Temporary) Instructor in Foods and Nutrition, Division of College Extension. On leave.
B. S., South Dakota State College.

THOMPSON, CHARLES RAY, Associate Professor of Economics. On leave.
A. B., A. M., University of Kansas.

THOMPSON, FRANK JAMES, Instructor in Physical Education. On leave.
B. Ed., Minnesota State Teachers College, Mankato; B. S., M. Ed., Springfield College.

THOMPSON, WALTER W., Assistant Professor of Pathology; Assistant Pathologist, Agricultural Experiment Station.
D. V. M., Michigan State College.

THOMSON, THOMAS R., Assistant Chemist, Agricultural Experiment Station.
B. S., University of California; M. S., Kansas State College.

THROCKMORTON, RAY IAMS, Professor and Head of Department of Agronomy; Agronomist, Agricultural Experiment Station.
B. S. in Agr., Pennsylvania State College; M. S., Kansas State College.

TICE, GALEN M., Consulting Radiologist, Department of Student Health.
A. B., McPherson College; M. D., University of Kansas.
Address, University of Kansas Hospitals, Kansas City, Kansas.

TIMMONS, FRANCIS LEONARD, Associate Agronomist, Bureau of Plant Industry, U. S. D. A.; in charge of Noxious Weed Control Investigations, Fort Hays Branch Agricultural Experiment Station.
B. S., M. S., Kansas State College. Address, Hays, Kansas.

TINKLIN, GWENDOLYN LAVERNE, Assistant in Home Economics, Agricultural Experiment Station.
B. S., Kansas State College.

TRIPP, WILSON, Associate Professor of Mechanical Engineering. On leave.
B. S., M. S., University of California.

TROTTER, VIRGINIA, Research Assistant in Chemistry. On leave.
B. S., Kansas State College.

TROUTMAN, WILLIAM CHILTON, Associate Professor of Speech.
A. B., M. A., University of Illinois.

TURNER, ALONZO FRANKLIN, Associate Professor; Field Agent, Division of College Extension.
B. S., Kansas State College.

TWIEHAUS, MARVIN JOHN, Instructor in Bacteriology. On leave.
D. V. M., Kansas State College.

UMBERGER, HARRY JOHN CHARLES, Dean and Director, Division of College Extension.
B. S., Kansas State College.

VAIL, GLADYS ELLEN, Professor of Food Economics and Nutrition; Food Economist, Agricultural Experiment Station.
A. B., Southwestern College; M. S., University of Chicago; Ph. D., University of Minnesota.

VAN WINKLE, WILLIAM ALEXANDER, Associate Professor of Chemistry.
B. S., University of Michigan; M. S., Ph. D., University of Illinois.

VAN ZILE, MARY PIERCE, Dean of Women Emeritus.
Diploma, Iowa State College; B. S., Kansas State College.

VILANDER, JAUNITA FRANCES, Assistant to the Director of Admissions.

WAGERS, ROBERT PHILLIP, Assistant Professor of Pathology. On leave.
D. V. M., M. S., Ohio State University.

WAGNER, JESSIE MAY, Assistant Postmistress. On leave.
B. S., Kansas State College.

WAGNER, KAROLYN MARGARET, Instructor in Art. On leave.
B. A., State College of Washington; M. S., Kansas State College.

WAGONER, CHARLES, Assistant Chemist, Agricultural Experiment Station.
B. S., McPherson College; M. S., Kansas State College.

WAGONER, JOHN A., Assistant Chemist, Agricultural Experiment Station.
B. S., Kansas State Teachers College, Pittsburg; M. S., Ph. D., Kansas State College.

WALL, MARGARET S., Instructor in Economics and Law of Veterinary Medicine; Assistant to the Dean, School of Veterinary Medicine.
B. S., Kansas State College.

WARD, JOSEPH EVANS, Jr., Assistant Professor of Electrical Engineering. On leave.
B. S. in E. E., University of Texas; M. S., University of Illinois.

WARNER, EUGENE D., Assistant Extension Editor, Division of College Extension.
B. S., Kansas State College.

WARREN, DON CAMERON, Professor of Poultry Husbandry; Geneticist, Agricultural Experiment Station.
A. B., A. M., Indiana University; Ph. D., Columbia University.

WASHBURN, LOUIS PIERCE, Professor of Physical Education for Men.
B. S., Carleton College; B. P. E., M. P. E., Springfield, Y. M. C. A. College.

WASSERMAN, EUGENE, Assistant Professor of Architecture. On leave.
B. S., M. S., University of Illinois; Architect, State of Illinois.

WEBER, ARTHUR D., Professor and Head of Department of Animal Husbandry; Animal Husbandman and Beef Cattle Specialist, Agricultural Experiment Station.
B. S., M. S., Kansas State College; Ph. D., Purdue University.

WEBSTER, NORMAN COATES, Assistant Professor of Speech. On leave.
B. O., A. B., Geneva College; M. S., Kansas State College.

WEIGEL, CHARLES B., Physician, Department of Student Health.
B. S., Allegheny College; M. D., Jefferson Medical College.

WEIGEL, PAUL, Professor and Head of Department of Architecture.
B. Arch., Cornell University; Architect, University of State of New York; Graduate, Buffalo Normal School.

WEST, BESSIE BROOKS, Professor and Head of Department of Institutional Management.
A. B., A. M., University of California.

WESTERMAN, BEULAH DOROTHEA, Associate Professor of Food Economics and Nutrition; Associate Food Economist, Agricultural Experiment Station.
B. S., University of Missouri; M. S., University of Chicago; Ph. D., University of Illinois.

WHEELER, GERTRUDE ALICE, Secretary to the Assistant Dean, School of Agriculture.

WHITCOMB, STUART ESTES, Associate Professor of Physics. On leave.
B. S., Antioch College; M. S., Syracuse University; Ph. D., Ohio State University.

WHITE, ALFRED EVERETT, Professor of Mathematics.
B. S., M. S., Purdue University.

WHITE, HATTIE HELEN, Secretary and Treasurer, Business Office.

WHITE, LEON VINCENT, Professor of Civil Engineering.
B. S., C. E., M. S., Kansas State College.

WHITNAH, CARRELL HENRY, Assistant Professor of Chemistry; Dairy Chemist, Agricultural Experiment Station. On leave.
A. B., University of Nebraska; M. S., University of Chicago; Ph. D., University of Nebraska.

WICHERS, HENRY EVERT, Professor of Rural Architecture.
B. S., M. S., Architect, Kansas State College.

WIGGINS, MARY CHRISTINE, Assistant Professor of Clothing and Textiles, Division of College Extension.
B. S., Kansas State College; M. A., Columbia University.

WILBUR, DONALD ALDEN, Associate Professor of Entomology; Associate Entomologist, Agricultural Experiment Station.
B. S., Oregon State College; A. M., Ohio State University.

WILLARD, JULIUS TERRASS, College Historian.
B. S., M. S., Sc. D., Kansas State College.

WILLIAMS, DWIGHT, Professor of History and Government.
A. B., LL. B., A. M., University of Minnesota.

WILLIAMS, JENNIE, Associate Professor of Child Welfare and Euthenics; Director of Nursing Education.
B. S., M. S., Kansas State College; R. N., University of Michigan Hospital.

WILLIAMS, LOUIS COLEMAN, Professor of Horticulture; Assistant Dean and Assistant Director, Division of College Extension.
B. S., Kansas State College.

WILLIS, WILLIAM WAYNE, Instructor in Horticulture.
A. B., College of Emporia.

WILLOUGHBY, LUTHER EARLE, Professor of Agronomy, Division of College Extension.
B. S., B. S. in Agr., Kansas State College.

WILSON, CHARLES PEAIRS, Assistant Professor of Agricultural Economics; Marketing, Agricultural Experiment Station. On leave.
B. S., M. S., Kansas State College.

WILSON, EDITH MARG, Technician in Food Economics and Nutrition.
B. S., Kansas State College.

WILSON, MANNIE RAY, Associate Professor of Shop Practice. On leave.
B. S., Kansas State College.

WIMMER, EDWARD JOSEPH, Professor of Zoölogy.
A. B., A. M., Ph. D., University of Wisconsin.

WINTER, LAURA I., (Temporary) Assistant Professor and District Home Demonstration Agent Leader, Division of College Extension.

WISE, GEORGE HERMAN, Associate Professor of Dairy Husbandry.
B. S., Clemson College; M. S., Ph. D., University of Minnesota.

WITTER, RALPH EDWARD, Instructor in Surgery and Medicine.
D. V. M., Cornell University.

WOOD, JOE NATE, Associate Professor of Machine Design.
B. S. in E. E., State University of Iowa.

WOOD, LEVELLE, Associate Professor of Institutional Management. On leave.
B. S., Oregon State College; M. S., Columbia University.

WOOLF, MAURICE D., Director of Student Personnel and Veterans' Adviser; Professor of Psychology.
B. S., Northeast Missouri State Teachers College; M. S., Ed. D., University of Missouri.

WOODS, WALTON C., Physician, Department of Student Health. On leave.
A. B., M. D., University of Kansas.

WUNSCH, MARGARET ESTHER, Instructor in Industrial Journalism.
B. S., Kansas State College.

ZAHNLEY, JAMES WALTER, Associate Professor of Farm Crops; Associate Agronomist, Agricultural Experiment Station.
B. S., M. S., Kansas State College.

Statistical Summary for 1943-1944

Students by States, Foreign Countries, and Kansas Counties

State

Alabama	1	Nebraska	6
Arkansas	3	New Jersey	8
Arizona	3	New Mexico	3
California	13	New York	15
Colorado	4	North Carolina	1
Connecticut	2	North Dakota	3
District of Columbia	2	Ohio	3
Georgia	5	Oklahoma	16
Idaho	1	Pennsylvania	1
Illinois	16	South Carolina	1
Indiana	5	South Dakota	4
Iowa	4	Texas	11
Kansas	1,871	Utah	1
Kentucky	2	Virginia	2
Louisiana	2	Washington	3
Maryland	1	West Virginia	1
Massachusetts	2	Wisconsin	9
Michigan	1		
Minnesota	8	Total	2,095
Missouri	61		

Foreign Countries

Colombia, S. A.	1
Germany	1
Hawaii	6
Palestine	1
Puerto Rico	4
Uruguay	1
Total	14
Grand total	2,109

Kansas Counties

Allen	11	Harvey	11
Anderson	9	Haskell	1
Atchison	8	Hodgeman	—
Barber	5	Jackson	21
Barton	21	Jefferson	4
Bourbon	4	Jewell	27
Brown	20	Johnson	20
Butler	22	Kearny	3
Chase	6	Kingman	12
Chautauqua	3	Kiowa	4
Cherokee	4	Labette	10
Cheyenne	9	Lane	9
Clark	7	Leavenworth	12
Clay	31	Lincoln	5
Cloud	41	Linn	3
Coffey	11	Logan	6
Comanche	5	Lyon	15
Cowley	22	McPherson	37
Crawford	17	Marion	13
Decatur	7	Marshall	58
Dickinson	38	Meade	—
Doniphan	9	Miami	8
Douglas	7	Mitchell	15
Edwards	12	Montgomery	20
Elk	1	Morris	22
Ellis	2	Morton	—
Ellsworth	15	Nemaha	27
Finney	11	Neosho	8
Ford	15	Ness	10
Franklin	12	Norton	7
Geary	47	Osage	8
Gove	3	Osborne	11
Graham	4	Ottawa	14
Grant	1	Pawnee	6
Gray	9	Phillips	10
Greeley	1	Pottawatomie	46
Greenwood	11	Pratt	5
Hamilton	2	Rawlins	3
Harper	12	Reno	35

STATISTICAL SUMMARY FOR 1943-1944—CONCLUDED

KANSAS COUNTIES—CONCLUDED

Republic	34	Stanton	1
Rice	20	Stevens	2
Riley	366	Sumner	25
Rooks	10	Thomas	11
Rush	5	Trego	3
Russell	18	Wabaunsee	29
Saline	42	Wallace	—
Scott	3	Washington	33
Sedgwick	90	Wichita	2
Seward	3	Wilson	17
Shawnee	52	Woodson	3
Sheridan	9	Wyandotte	70
Sherman	5		
Smith	6	Total	1,871
Stafford	11		

Army Trainees Enrolled During 1943-1944

A. A. F. (Air Cadets)	1,040
A. S. T. P. (Engineers)	814
A. S. T. P. (Reserves)	150
*A. S. T. P. (R. O. T. C.)	76
*A. S. T. P. (Veterinary Medicine)	163
Total	2,243

* Also counted in enrollment of regular students.

Record of Enrollment and Degrees Conferred, 1863-1944

Year.	Summer school	Housekeepers' short course	Dairy Mfg. short course	Dairy short course	Farmers' short course	Apprentice	Special	Preparatory	Subfreshman	Vocational school	Freshman	Sophomore	Junior	Senior	Graduate	Counted twice	Net total	Graduated	Advanced degrees
1863-'64	....	....	....	....	....	....	....	92	....	....	14	....	....	....	....	....	106	....	....
1864-'65	....	....	....	....	....	....	....	91	....	....	14	8	1	....	....	....	114	....	....
1865-'66	....	....	....	....	....	....	....	99	....	....	21	3	5	....	....	....	127	....	....
1866-'67	....	....	....	....	....	....	....	118	....	....	11	7	1	5	....	....	142	5	....
1867-'68	....	....	....	....	....	....	....	103	....	....	6	5	1	....	....	....	115	....	1
1868-'69	....	....	....	....	....	....	....	137	....	....	10	10	2	....	1	....	160	....	....
1869-'70	....	....	....	....	....	....	....	119	....	....	10	12	1	....	....	....	142	....	....
1870-'71	....	....	....	....	....	....	....	118	....	....	13	5	4	5	....	....	145	5	5
1871-'72	....	....	....	....	....	....	....	129	....	....	20	11	3	5	2	2	168	3	1
1872-'73	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	173	2	1
1873-'74	....	....	....	....	....	....	....	137	....	....	24	14	3	6	....	....	184	5	....
1874-'75	....	....	....	....	....	....	....	103	....	....	26	10	2	2	....	....	143	2	1
1875-'76	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	238	5	....
1876-'77	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	232	9	1
1877-'78	....	....	....	....	....	....	....	75	....	....	42	23	5	5	....	....	152	4	....
1878-'79	....	....	....	....	....	....	1	....	....	....	89	89	16	12	....	....	214	9	2
1879-'80	....	....	....	....	....	....	1	....	....	....	166	61	35	11	2	....	276	7	2
1880-'81	....	....	....	....	....	....	6	....	....	....	178	48	24	9	2	....	267	8	....
1881-'82	....	....	....	....	....	....	5	....	....	....	227	50	19	11	....	....	312	9	2
1882-'83	....	....	....	....	....	....	4	....	....	....	241	60	30	12	....	....	347	12	3
1883-'84	....	....	....	....	....	....	2	....	....	....	255	92	26	18	2	....	395	17	....
1884-'85	....	....	....	....	....	....	2	....	....	....	271	71	36	16	5	....	401	14	1
1885-'86	....	....	....	....	....	....	1	....	....	....	273	91	35	24	4	....	428	21	2
1886-'87	....	....	....	....	....	....	....	....	....	....	303	100	44	24	10	....	481	21	5
1887-'88	....	....	....	....	....	....	....	....	....	....	305	92	46	27	2	....	472	22	1
1888-'89	....	....	....	....	....	....	....	....	....	....	266	103	41	28	7	....	445	25	1
1889-'90	....	....	....	....	....	....	1	....	....	....	307	105	63	28	10	....	514	27	2
1890-'91	....	....	....	....	....	....	....	....	....	....	343	135	50	53	12	....	593	52	2
1891-'92	....	....	....	....	....	....	....	....	....	....	336	139	62	37	10	....	584	35	....
1892-'93	....	....	....	....	....	....	....	....	....	....	339	110	66	43	29	....	587	39	9
1893-'94	....	....	....	....	....	....	....	....	....	....	275	141	72	42	25	....	555	39	6
1894-'95	....	....	....	....	....	....	5	....	....	....	276	108	89	64	39	....	572	57	3
1895-'96	....	....	....	....	....	....	3	....	....	....	353	121	67	71	32	....	647	66	5
1896-'97	....	....	....	....	....	....	6	67	....	....	321	163	69	62	46	....	734	55	8
1897-'98	....	....	....	6	....	9	15	77	....	....	316	174	77	82	57	10	803	69	10
1898-'99	....	....	....	26	....	35	40	110	....	....	306	177	92	65	40	21	871	53	10
1899-1900	....	24	....	57	47	50	32	162	....	....	376	163	109	69	27	22	1,094	58	3
1900-'01	....	47	....	72	109	79	23	318	....	....	348	183	80	74	40	52	1,321	60	9
1901-'02	....	41	....	66	125	87	19	298	....	....	396	206	120	65	32	59	1,396	52	3
1902-'03	....	63	....	38	123	78	36	342	....	....	471	229	141	86	24	57	1,574	55	....
1903-'04	17	51	....	16	122	72	33	443	....	....	403	206	161	114	20	36	1,605	102	1
1904-'05	15	88	....	24	99	12	30	500	....	....	289	198	122	117	26	43	1,462	107	2
1905-'06	18	92	....	28	118	....	46	598	....	....	373	214	145	110	30	64	1,690	96	4
1906-'07	18	134	....	23	179	Engineering short course	48	144	511	....	411	269	149	133	24	88	1,937	119	5
1907-'08	29	188	....	26	173		42	134	528	....	450	357	202	148	26	82	2,192	116	4
1908-'09	25	168	....	18	197		42	134	521	....	491	381	243	171	28	86	2,308	139	12
1909-'10	22	152	4	111	124		87	89	453	....	456	417	286	170	26	70	2,305	144	2
1910-'11	31	160	9	26	285		107	Milling short course	364	....	533	412	288	248	34	59	2,407	205	2
1911-'12	94	160	14	Lunch room m'g't	280		85		580	....	337	461	288	261	44	81	2,523	230	6
1912-'13	282	175	11		289		129		654	....	444	432	355	268	55	166	2,928	230	4
1913-'14	370	149	12		223		112			658	516	431	324	327	64	159	3,027	283	8
1914-15	472	127	18		199	98	120			560	575	368	383	321	48	200	3,089	223	6
1915-'16	536	85	17		207	188	175			484	605	454	305	401	76	219	3,314	341	18
1916-'17	586	103	14		228	191	172			422	693	471	378	282	68	279	3,339	197	13
1917-'18	481	84	....	8	119	135	138			231	483	349	294	238	36	190	2,406	216	17
1918-'19	519	25	5	....	160	400	199			216	810	322	254	201	34	144	2,991	167	7
1919-'20	415	57	3	6	117	362	271			224	894	400	297	273	44	167	3,376	260	11
1920-'21	604	30	10	....	96	278	270	8		280	878	602	318	273	42	294	3,395	249	14
1921-'22	820	19	10	....	59	173	221	....		297	931	628	422	296	125	813	3,560	272	28
1922-'23	884	19	8	....	55	83	163	12		220	1004	656	460	401	118	457	3,626	341	31
1923-'24	978	12	7	....	43	57	161	3		167	1160	657	458	413	171	475	3,812	342	43
1924-'25	1120	14	14	....	55	54	139	5		47	1391	679	467	347	185	486	4,031	335	53
1925-'26	947	12	11	....	41	29	89	....		....	1494	725	512	344	182	384	4,019	341	51

Engineering trade courses

RECORD OF ENROLLMENT AND DEGREES CONFERRED, 1863-1944—CONCLUDED

YEAR.	Summer school	Housekeepers' short course	Dairy Mfg. short course	Dairy short course	Farmers' short course	Apprentice	Special	Preparatory	Subfreshman	Vocational school	Freshman	Sophomore	Junior	Senior	Graduate	Counted twice	Net total	Graduated	Advanced degrees
1926-'27	959	....	18	....	52	....	71	....	19	....	1311	854	509	411	179	300	4,083	357	77
1927-'28	966	....	20	....	57	....	88	....	7	....	1039	819	584	500	167	418	3,878	428	70
1928-'29	920	....	18	....	51	....	57	....	9	....	1084	743	584	537	197	321	3,879	461	84
1929-'30	902	....	13	....	59	....	70	....	9	....	1128	787	581	554	†432	548	3,987	469	91
1930-'31	995	....	24	....	52	....	50	....	7	....	1077	790	605	528	506	589	4,045	424	91
1931-'32	1059	....	12	....	29	....	54	....	....	....	933	752	633	572	572	688	3,928	486	119
1932-33	995	....	....	....	....	....	72	....	....	....	666	596	552	590	518	630	3,359	523	118
1933-'34	655	....	....	....	....	....	61	....	....	....	707	558	520	522	327	422	2,928	423	70
1934-'35	722	....	....	....	....	....	52	....	....	....	1081	616	548	557	316	456	3,436	470	52
1935-'36	989	....	....	....	....	....	69	....	....	....	1330	820	660	574	391	572	4,261	478	72
1936-'37	917	....	....	....	....	....	64	..	....	....	1326	947	774	623	440	634	4,457	521	90
1937-'38	890	....	....	....	....	....	67	....	....	....	1297	972	810	787	409	537	4,695	637	92
1938-'39	911	....	....	....	....	....	61	....	....	....	1246	959	864	855	463	559	4,800	720	86
1939-'40	920	....	....	....	....	....	61	....	....	....	1306	958	926	871	490	622	4,910	710	79
1940-'41	935	....	....	....	....	....	40	....	....	....	1284	969	905	900	524	655	4,902	734	85
1941-'42	880	....	....	....	....	....	17	....	....	....	1274	926	807	748	417	590	4,479	617	68
1942-43	1178	....	....	....	....	....	21	....	....	....	1234	717	587	717	253	846	3,861	646	28
1943-'44*	1181	....	....	....	....	....	21	....	....	....	1234	717	587	717	217	888	3,786	....	....
1943-'44	911	....	....	....	....	....	18	....	....	....	483	371	312	440	193	619	2,109	390	28

† Figures above this column include neither graduate students in summer session, nor undergraduate students pursuing graduate work.

* Beginning with this year this summary is made at the close of the summer session instead of at the close of the spring semester as before.

College Registration, 1943-1944

The School.	Men.	Women.	Total.
The School of Agriculture	**86**	**2**	**88**
Graduate students	12	.....	12
Seniors	27	.....	27
Juniors	9	1	10
Sophomores	14	.....	14
Freshmen	24	1	25
The School of Arts and Sciences	**187**	**385**	**572**
Graduate students	35	18	53
Seniors	39	71	110
Juniors	21	65	86
Sophomores	13	97	110
Freshmen	70	127	197
Special students	9	7	16
The School of Engineering and Architecture	**314**	**11**	**325**
Graduate students	18	3	21
Seniors	123	.....	123
Juniors	46	1	47
Sophomores	32	3	35
Freshmen	95	4	99
The School of Home Economics	.....	**589**	**589**
Graduate students	.....	25	25
Seniors	.....	133	133
Juniors	.....	115	115
Sophomores	.....	137	137
Freshmen	.....	177	177
Special students	.....	2	2
The School of Veterinary Medicine	**196**	**2**	**198**
Graduate students	6	.....	6
Seniors	49	2	51
Juniors	58	.....	58
Sophomores	81	.....	81
Freshmen	2	.....	2
Totals	783	989	1,772
Counted twice	26	24	50
Net totals	757	965	1,722
The Summer Schools 1944	**387**	**524**	**911**
Totals	1,144	1,489	2,633
Counted twice	271	253	524
Net grand totals	873	1,236	2,109
The Graduate School	**99**	**94**	**193**
Graduate students in regular sessions	56	43	99
Graduate students in summer schools	37	70	107
Counted twice	13	23	36
Net in summer schools only	24	47	71
Graduate students in absentia (included in above figures)	3	.....	3
Undergraduate students carrying graduate work	19	4	23

Degrees Conferred in the Year 1944

School and Curriculum (or Major Study)	Men.	Women.	Total.
School of Agriculture (B. S.)	**17**		**17**
Agriculture	15		15
Milling Industry	2		2
School of Arts and Sciences (B. S.)	**33**	**64**	**97**
General Curriculum	10	34	44
Business Administration	7	7	14
Industrial Chemistry	14	1	15
Industrial Journalism	1	14	15
Music Education		5	5
Physical Education	1	3	4
School of Engineering and Architecture (B. S.)	**95**		**95**
Agricultural Engineering	3		3
Architecture	2		2
Architectural Engineering	3		3
Chemical Engineering	28		28
Civil Engineering	14		14
Electrical Engineering	18		18
Mechanical Engineering	27		27
School of Home Economics (B. S.)		**130**	**130**
Home Economics		121	121
Home Economics and Nursing		9	9
School of Veterinary Medicine (D. V. M.)	**49**	**2**	**51**
Veterinary Medicine	49	2	51
Total of undergraduate degrees	194	196	390
The Graduate School (M. S.)	**7**	**18**	**25**
Agricultural Economics	1		1
Agronomy	1		1
Art		1	1
Chemistry	1		1
Child Welfare and Euthenics		1	1
Civil Engineering	1		1
Clothing and Textiles		5	5
Education		1	1
English		1	1
Food Economics and Nutrition		4	4
Home Economics Education and General Home Economics		2	2
History and Government	1		1
Mathematics	1		1
Speech		1	1
Zoölogy	1	2	3
The Graduate School (Ph. D.)	**1**		**1**
Chemistry	1		1
Honorary Degrees	**2**		**2**
Doctor of Engineering	1		1
Doctor of Science	1		1
Total degrees conferred in 1944	**204**	**214**	**418**

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Industrial Journalism....		Totals.....		Counted Twice.....		Net Grand Totals.....		
M	al	M	W	M	W	M	W	Total
1	..	238	206	2	2	236	204	440
1	..	134	182	2	2	132	180	312
1	..	140	237	1	5	139	232	371
2	..	191	309	5	12	186	297	483
.....	.....	9	9	.....	.....	9	9	18
5	..	712	943	10	21	*702	922	*1,624
2	..	350	454	254	229	96	225	321
7	..	1,062	1,397	264	250	798	1,147	1,945
.....	.....	56	43	.....	.....	56	43	99
.....	.....	37	70	13	23	24	47	71
.....	.....	3	.....	3	.....	.....	.....	.....
.....	.....	19	4	.....	.....	19	4	23
.....	.....	115	117	16	23	99	94	193
7		1,177	1,514	280	273	897	1,241	2,138
2		.....	.....	.....	.....	24	5	29
5		.....	.....	.....	.....	*873	1,236	*2,109
91								

Degrees Conferred in the Year 1944

School and Curriculum (or Major Study)	Men.	Women.	Total.
School of Agriculture (B. S.)	**17**	.....	**17**
Agriculture	15	.....	15
Milling Industry	2	.....	2
School of Arts and Sciences (B. S.)	**33**	**64**	**97**
General Curriculum	10	34	44
Business Administration	7	7	14
Industrial Chemistry	14	1	15
Industrial Journalism	1	14	15
Music Education	.....	5	5
Physical Education	1	3	4
School of Engineering and Architecture (B. S.)	**95**	.....	**95**
Agricultural Engineering	3	.....	3
Architecture	2	.....	2
Architectural Engineering	3	.....	3
Chemical Engineering	28	.....	28
Civil Engineering	14	.....	14
Electrical Engineering	18	.....	18
Mechanical Engineering	27	.....	27
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Agricultural Economics	1	.....	1
Agronomy	1	.....	1
Art	.....	1	1
Chemistry	1	.....	1
Child Welfare and Euthenics	.....	1	1
Civil Engineering	1	.....	1
Clothing and Textiles	.....	5	5
Education	.....	1	1
English	.....	1	1
Food Economics and Nutrition	.....	4	4
Home Economics Education and General Home Economics	.....	2	2
History and Government	1	.....	1
Mathematics	1	.....	1
Speech	.....	1	1
Zoölogy	1	2	3
The Graduate School (Ph. D.)	**1**	.....	**1**
Chemistry	1	.....	1
Honorary Degrees	**2**	.....	**2**
Doctor of Engineering	1	.....	1
Doctor of Science	1	.....	1
Total degrees conferred in 1944	**204**	**214**	**418**

ANALYSIS OF REGISTRATION, 1943-1944

| CLASSIFICATION | Agriculture | | Agricultural Administration | | Dairy Manufacturing | | Milling Industry | | Floriculture and Ornamental Horticulture | | | Landscape Design | | Veterinary Medicine | | | Pre-Veterinary | | | General Curriculum | | | Business Administration | | | Business Administration and Accounting | | | Industrial Chemistry | | | Industrial Journalism | | | Music | Physical Education | | | Physical Science | | | Home Economics | Home Economics and Art | | Home Economics and Nursing | | | Agricultural Engineering | | | Architecture | | | Architectural Engineering | | | Chemical Engineering | | Civil Engineering | | Electrical Engineering | | Industrial Arts | | Mechanical Engineering | | | General Engineering and Architecture | | | Summer School, 1944 | | | Totals | | | Counted Twice | | | Net Grand Totals | | | Not Grand Totals |
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